APR 25 1921

Volume XXIX Number 4

GENERAL LIBRARY
APR 25 1921
UNIV. OF MICH.

The Journal OF Political Economy

PUBLISHED BY THE UNIVERSITY OF CHICAGO

APRIL 1921

Federal Taxation of Income from the Production of Minerals *Arthur C. Kelley* **265**

Joint Cost in the Packing Industry *George E. Putnam* **293**

Cost of Production and Price over Long and Short Periods *F. H. Knight* **304**

***The Brass Check*, A Study of American Journalism: By Upton Sinclair** *Curtice N. Hitchcock* **336**

Book Reviews and Notices **349**

CHERINGTON'S *The Elements of Marketing* (Lyon), 349.—HART'S *Community Organization* (McKenzie), 351.

THE UNIVERSITY OF CHICAGO PRESS
CHICAGO, ILLINOIS, U.S.A.

THE CAMBRIDGE UNIVERSITY PRESS, LONDON
THE MARUZEN-KABUSHIKI-KAISHA, TOKYO, OSAKA, KYOTO, FUKUOKA, SENDAI
THE MISSION BOOK COMPANY, SHANGHAI

April 1921 Vol. XXIX, No. 4

The Journal of Political Economy

Editors

JOHN MAURICE CLARK, *Managing Editor*

NATHANIEL WARING BARNES
JAMES ALFRED FIELD
CHARLES OSCAR HARDY
J. LAURENCE LAUGHLIN, *Emeritus*
LEON CARROLL MARSHALL
HARRY ALVIN MILLIS
HAROLD GLENN MOULTON
CHESTER WHITNEY WRIGHT

The Journal of Political Economy is published monthly, except in August and September, by the University of Chicago at the University of Chicago Press, 5750 Ellis Avenue, Chicago, Illinois. ¶ The subscription price is $4.00 per year; the price of single copies is 50 cents. Orders for service of less than a half-year will be charged at the single-copy rate. ¶ Postage is prepaid by the publishers on all orders from the United States, Mexico, Cuba, Porto Rico, Panama Canal Zone, Republic of Panama, Bolivia, Colombia, Honduras, Nicaragua, Peru, Hawaiian Islands, Philippine Islands, Guam, Samoan Islands, Shanghai. ¶ Postage is charged extra as follows: For Canada, 30 cents on annual subscriptions (total $4.30), on single copies 3 cents (total 53 cents); for all other countries in the Postal Union, 42 cents on annual subscriptions (total $4.42), on single copies 5 cents (total 55 cents). ¶ Patrons are requested to make all remittances payable to the University of Chicago Press in postal or express money orders or bank drafts.

The following are authorized to quote the prices indicated:

For the British Empire: The Cambridge University Press, Fetter Lane, London, E.C. 4, England. Yearly subscriptions, including postage, 29*s.* each; single copies, including postage, 5*s.* 3*d.* each.

For Japan and Korea: The Maruzen-Kabushiki-Kaisha, 11 to 16 Nihonbashi Tori Sanchome, Tokyo, Japan. Yearly subscriptions, including postage, Yen 8.87; single copies, including postage, Yen 1.12.

For China: The Mission Book Company, 13 North Szechuen Road, Shanghai. Yearly subscriptions, $4.00; single copies, 50 cents, or their equivalents in Chinese money. Postage extra, if mailed direct outside of Shanghai, on yearly subscriptions 42 cents, on single copies 5 cents.

Claims for missing numbers should be made within the month following the regular month of publication. The publishers expect to supply missing numbers free only when losses have been sustained in transit and when the reserve stock will permit.

Business correspondence should be addressed to The University of Chicago Press, Chicago, Ill.

Communications for the editors and manuscripts should be addressed to the Editors of THE JOURNAL OF POLITICAL ECONOMY, The University of Chicago, Chicago, Ill.

Entered as second-class matter, January 16, 1893, at the Post-office at Chicago, Illinois, under the Act of March 3, 1879.

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on July 15, 1918.

THE JOURNAL
OF
POLITICAL ECONOMY

VOLUME 29 *April 1921* NUMBER 4

FEDERAL TAXATION OF INCOME FROM THE PRODUCTION OF MINERALS

The policy of post-war taxation which is adopted by the federal government probably will have a more direct and vital influence on the general well-being of the country than any other governmental domestic policy. The war is over but not yet paid for, and it will be many years before the huge national debt of some twenty-four billions of dollars is liquidated. It is, therefore, of prime importance to every citizen to consider without prejudice what is the most equitable and least oppressive method of raising the enormous funds necessary to meet the greatly increased operating expenses of government, interest on the public debt, and the sinking fund to redeem it.

As a result of some two years' experience in applying the income-tax law to many kinds of businesses and individuals, while connected with the Technical Division of the Income Tax Unit at Washington, the author is convinced that the only sufficiently productive and most equitable method of raising the bulk of the government's revenue, is by means of the income tax together with its special form, the excess profits tax. Certain features of the law, however, are open to serious criticism.

Beyond doubt, the most urgent need of the present law is *greater simplicity*. Its unnecessary complexity has caused the

taxpayers of this country great expense, delays, and irritation. To be sure no law involving the determination of invested capital can be simple. This phase of tax administration must remain complex in some cases, but as each year passes during which the law is in force, the computation of invested capital becomes more intelligible, and the period of initial instruction to the taxpayers is now past. The great criticism of the law lies in its needless complexity, which is caused by many special provisions interspersed throughout the statute which aim at giving relief from taxation to certain classes of taxpayers.

Among these special relief sections and "cushions," the portions of the law which deal with the taxation of income derived from mines and from oil and gas wells are among the most unfortunate. In the following pages attention is called to some of the provisions dealing with this class of income which are most obviously in need of amendment if the law is to accomplish its purpose of raising large revenues with a minimum of injustice, inequality, and unnecessary administrative labor.

The special surtax computation.—Section 211(*b*) under Part II of Title II of the act of 1918 provides as follows:

> In the case of a bona fide sale of mines, oil or gas wells, or any interest therein, where the principal value of the property has been demonstrated by prospecting or exploration and discovery work done by the taxpayer, the portion of the tax imposed by this section attributable to such sale shall not exceed 20 per centum of the selling price of such property or interest.

This is the first of the many special provisions of the law which give special privileges to those taxpayers who are engaged in the business of developing the natural resources of the country. The effect of this clause is shown by the following illustration.

Assume an individual oil operator obtains a lease on 100 acres of unproved land, and strikes oil in large quantity on the second attempt. The first well cost $20,000 and was a failure. The second cost $30,000 and proved the presence of a deep, very productive sand. As a result of this discovery the lease multiplies many times in value, and in the year 1920 is sold to a corporation for $250,000. The lease was obtained for a royalty consideration of one-eighth of the oil produced, the cost of drilling the wells was $50,000, so that

the profit from the sale of the lease amounts to $200,000. If this profit were taxed in the regular manner under section 211 (*a*), the surtax would amount to $77,510, but when the surtax is computed under subdivision (*b*) it amounts to 20 per cent of the selling price or $50,000, which saves this taxpayer $27,510. If he had built up a manufacturing business through long years of effort, and had sold out in 1920 at a profit of $200,000, he would have to pay the full surtax of $77,510, which is $27,150 more than the oil operator pays.

What is the explanation of such discrimination? Why should the discoverer of an oil well, who makes his profit in a day, as it were, be favored over the manufacturer or merchant who makes his wealth after years of effort in building up "good-will"? It would appear more reasonable to favor the taxpayer whose profit is the result of a slow and laborious process of building up his trading or manufacturing business, because this profit usually represents the work of years. The profit of the oil well discoverer, on the other hand, is either made or lost when the drill hits the sand. If luck is with him, he does not need any limitation of tax, because his profits are large, and if luck is against him, the limitation of tax does him no good. Any "wildcatter" would be glad to pay the regular surtax, if he could only achieve success.

The intention of Congress, no doubt, was to stimulate the oil production of the country, but if such were the only reason, why are mines given similar treatment? Besides, does such a provision actually stimulate the discovery and production of oil? Out of ten efforts to find oil, probably eight fail and lose the capital invested. Does the law assist the eight unlucky men, who perhaps have sunk their last dollar in a dry hole? Not at all, that is their risk, and they alone must bear the loss. But the two who gain the coveted goal are given favored treatment, over all other taxpayers, *and these two are the very ones who do not need it*, because their profits are so large, that they can well afford to pay the tax, to which all other taxpayers are subject. If the government really desires to stimulate the discovery of new oil wells, it would be far more to the point to share in a measure the losses of the unsuccessful rather than to favor the successful, who do not need financial

assistance. In fact it is not probable that this provision has actually stimulated oil discovery in the slightest, because there never yet was an oil prospector who gave up his occupation because of thinking about the surtax he would have to pay if he struck oil.

A careful consideration of this section of the law leads one to the conviction that it is wholly indefensible.

Discoveries under the excess profits tax.—The last section in the law is another example of special treatment. It reads as follows:

> SECTION 337. That in the case of a bona fide sale of mines, oil or gas wells, or any interest therein, where the principal value of the property has been demonstrated by prospecting or exploration and discovery work done by the taxpayer, the portion of the tax imposed by this title attributable to such sale shall not exceed 20 per cent of the selling price of such property or interest.

The provision and purpose of this section are the same as those of section 211 (*b*), which has just been discussed except that the 20 per cent limitation applies to the excess profits tax levied under Title III, whereas the limitation in section 211 (*b*) applies to the surtax levied under Title II of the revenue act. For the reasons set forth in the discussion of section 211 (*b*) it is clear that this cushion in the law, placed there for the benefit of the oil and mining interests, cannot be justified, and should be repealed. It is sheer favoritism and unjust discrimination to grant such relief from taxation as this section provides to those corporations engaged in the mining, oil, and gas industries, and not grant it to the thousands of corporations engaged in other industries.

The depletion deduction.—The provisions governing depletion deductions for corporations in section 234 (*a*) (9) are identical with the deductions for depletion allowed individuals in section 214 (*a*) (10), and the criticism which follows applies to both individuals and corporations. The law provides:

> SECTION 234. (*a*) That in computing the net income of a corporation subject to the tax imposed by section 230 there shall be allowed as deductions:
>
> (9) In the case of mines, oil and gas wells, other natural deposits, and timber, a reasonable allowance for depletion and for depreciation of improvements, according to the peculiar conditions in each case, based upon cost including cost of development not otherwise deducted: Provided that in the case of such properties acquired prior to March 1, 1913, the fair market value

of the property (*or the taxpayer's interest therein*) on that date shall be taken in lieu of cost up to that date. . . . . *In the case of leases the deductions allowed by this paragraph shall be equitably apportioned between the lessor and lessee.*

In contradistinction to preceding laws, the revenue act of 1918 for the first time, allowed a lessee to set up a valuation of his lease as of March 1, 1913 for the purpose of depletion. The act of 1917 permitted depletion to be taken only by the fee-owner or lessor, and a lessee was denied any allowance for depletion. This specific provision of the 1917 law was sustained by the United States Court of Appeal for the Northern District of Ohio in the case of *Harry Weiss, Collector* vs. *Mohawk Mining Company*, decided March 2, 1920.

The effect of allowing a lessee to set up a March 1, 1913 valuation of his lease for the purpose of depletion is shown by the following illustration. Assume the Apex Coal Company acquired a fifty-year lease in 1906 on 1,200 acres of bituminous coal land in Illinois, in consideration of the agreement to pay the lessor a royalty of 5 cents per ton of coal taken out. Shafts were sunk and development work gotten under way, with the result that by 1913 the business was on a paying basis with an annual production of 250,000 tons. During these first three years the development and exploration work had been carried to a point which disclosed that the territory was underlaid with a coal vein varying from 4 to 5 feet in thickness, with an estimated recovery of 5,000 tons an acre, and on March 1, 1913 the recoverable coal in the ground was estimated to be 5,000,000 tons.

The Apex Coal Company thus found itself on March 1, 1913 possessed with a valuable lease, granting it the right to extract 5,000,000 tons of coal for the payment of a royalty of only 5 cents a ton, whereas the rate of royalty commonly prevailing in that locality on March 1, 1913 was 15 cents a ton. In other words, the lessee corporation saves 10 cents on every ton mined, over what would have been the royalty if the lease had been acquired in 1913. This saving of 10 cents a ton amounts to a yearly saving of $25,000 on the annual output of 250,000 tons, or a total saving during twenty years, the life of the mine, of $500,000. The revenue act of 1918, by virtue of the last sentence of paragraph (9), quoted

above, now permits the lessee, the Apex Coal Company, to capitalize this total estimated saving and set it up on the books as a depletable asset.

The method of arriving at the March 1, 1913 valuation of this asset is the present-value method. Since the annual saving is $25,000 for twenty years, the problem is to determine the present value of an annuity of $25,000 for twenty years at a safe rate, usually 4 per cent. By reference to an annuity table it is found that this present value is $339,757.50 which can be set up by the lessee as the value of his lease on March 1, 1913, and can be depleted at the rate of 6.795 cents a ton or $16,987.50 annually. The 1918 law thus gives the lessee in this case an annual gift of tax-free income to the amount of $16,987.50.

It is unfortunate that the framers of the law did not follow the principles laid down in the revenue act of 1917 which have the double merit of being sustained by the Supreme Court and also following conservative accounting practice.

In the case of the *Biwabik Mining Company* vs. *The United States*[1] decided May 20, 1918, the Circuit Court of Appeals upheld the lessee's claim for depletion on his leasehold valuation in these words:

> We think that the lessee of such property and under such a lease is as much entitled as is the owner of the fee to treat the value of his interest in the ore in the ground at the beginning of the tax period as his capital. . . . . Such a lease as applied to this situation is in every substantial way *pro tanto* a purchase.

The Supreme Court, however, held the opposite view concerning the nature of a lease, and concurred with the District Court which had held:

> That the leases in question were not conveyances of ore in place, but were grants of the privilege of entering upon the premises and mining and removing the ore, and consequently, that the deduction claimed (depletion allowance) as being one from capital investment could not be allowed.

The Supreme Court by this decision denied to the lessee the privilege of setting up a valuation based upon the capitalization of estimated savings in royalty payments, and computing depletion

[1] 247 United States 116.

thereon. In the case of the Mohawk Mining Company the Court of Appeals followed the ruling in the Biwabik case and said:

> In *United States* vs. *Biwabik Company* (arising under the Act of 1909) it was ruled, after full consideration, that under a lease practically identical with the Mohawk lease now involved, the nature of the interest held by the lessee was not such as to permit it to claim the allowance, but that the contingencies which attended the character of the lessee's interest barred it from claiming that its capital assets had been diminished. . . . . Holding this view as to the effect which must be given to the decision in the Biwabik case, it follows that the judgment below must be reversed and judgment entered for the defendant; and the case is remanded for that purpose.

It would thus appear that, on appeal to the Supreme Court, there is small chance of the Mohawk Mining Company establishing its right to depletion, unless the Supreme Court reverses itself.

It is most fortunate that the final court has taken this view of lease valuations, for the opposite view would have granted large tax exemptions to thousands of lessee taxpayers throughout the country, and in addition, it would have given legal sanction to poor accounting practice. It is always unsafe to capitalize a prospective future saving. A lessee has really no more right to capitalize an estimated saving on royalties, than would a manufacturer have the right to capitalize an estimated saving on his rent due to an advantageous long-term lease. Both are merely writing up their assets on the basis of an anticipated future saving, and such a practice is contrary to conservative accounting principles.

The framers of the revenue act of 1918 apparently lost sight of these considerations, and in their endeavor to make the law just and equitable inserted in section 234 (*a*) (9) the final sentence—"In the case of leases the deductions allowed by this paragraph shall be equitably apportioned between the lessor and lessee,"—the effect of which is to grant depletion to lessees and nullify the practice of the 1917 law which has been upheld by the Supreme Court in the decisions cited above.

Although a reading of the law indicates that the depletion allowance is to be *apportioned* between the lessor and the lessee, the actual practice of the Treasury Department is not to apportion it, but to determine the depletion allowance separately for each party. For

example, in the illustration used above the lessor received a royalty of 5 cents a ton from the Apex Coal Company. If the land originally cost the lessor practically nothing, which is the case with most lessors, and the surface value is not injured by the extraction of the coal, the depletion allowable on the basis of cost would be nothing, and the entire royalty received of 5 cents a ton would be taxable income. However, since the depletion is based on the March 1, 1913 valuation, instead of cost, the calculation is different. The lessor will receive, according to the mining engineers' estimate, for twenty years after March 1, 1913, an annual royalty of $12,500 which amounts to a total future royalty of $250,000. The present value of this annuity at 4 per cent is $169,878.75, which represents the value of the lessor's interest as of March 1, 1913. This amount divided by the tonnage of 5,000,000 equals 3.3975 cents, the depletion allowance per ton. According to this calculation the taxable income per ton becomes only 1.6025 cents, and the annual income of the lessor is divided as follows: $8,493.75 nontaxable and $4,006.25 taxable. It is thus seen that this method of determining the allowable depletion, which is followed by the department, is of great benefit to the lessor.

If it is granted that the present-value method of valuation does determine the actual fair market value of the lessor's interest as of March 1, 1913, then the foregoing computation is correct, and the lessor in the case above should receive during the life of the property $169,878.75 as a return of capital free from tax. It should be realized, however, that this amount, although termed depletion, is really income to the lessor accrued prior to March 1, 1913, but not realized until later when the coal was mined.

By granting a lessee the right to set up a March 1, 1913 valuation of his lease for the purpose of depletion, the framers of the revenue act of 1918 have granted to lessees a right which was specifically denied them by the ruling of the Supreme Court in the Biwabik case, and thereby have befuddled and complicated the whole situation. The remedy is to go back to the law of 1917, which has been sustained by the courts, and repeal that part of paragraph (9) in section 234 (*a*) which is underlined above, and to add clarity the following sentence could be inserted: "No deduc-

tion for depletion shall be allowed to a lessee, on the basis of a value as of March 1, 1913."

The thirty-day valuation privilege.—Paragraph (9) of section 234 (*a*) contains a most noteworthy provision in regard to depletion as follows:

> Provided further, That in the case of mines, oil and gas wells, discovered by the taxpayer, on or after March 1, 1913, and not acquired as the result of purchase of a proven tract or lease, where the fair market value of the property is materially disproportionate to the cost, the depletion allowance shall be based upon the fair market value of the property at the date of the discovery, or within thirty days thereafter; such reasonable allowance in all the above cases to be made under rules and regulations to be prescribed by the Commissioner with the approval of the Secretary.

Articles 219–21, Regulations 45, prescribe the rules under which this valuation for the purpose of depletion may be obtained. There are two requisite conditions precedent to this privilege of revaluations: (1) the fair market value of such property (mine, oil, or gas well) on the date of discovery or within thirty days thereafter, must be materially disproportionate to the cost of such discovery; and (2) the discovery must not be made upon "proven" territory.

The department has never defined with precision what the "discovery of a mine" means, but T.D. 2956 defines the "discovery of an oil or gas well" precisely as follows:

> Article 220 (*a*). (1) For the purpose of these sections of the Revenue Act of 1918, an oil or gas well may be said to be discovered when there is either a natural exposure of oil or gas, or a drilling that discloses the actual and physical presence of oil or gas in quantities sufficient to justify commercial exploitation. . . . .
>
> (2) A proven tract or lease may be a part or the whole of a proven area. A proven area for the purposes of this statute shall be presumed to be that portion of the productive sand or zone or reservoir included in a square surface area of 160 acres having as its center the mouth of a well producing oil or gas in commercial quantities. In other words, a producing well shall be presumed to prove that portion of a given sand, zone, or reservoir which is included in an area of 160 acres of land, regardless of private boundaries. . . . .
>
> So much of a taxpayer's tract or lease which lies within an area proven either by himself or by another is "a proven tract or lease" as contemplated by the statute, and the discovery of a well thereon will not entitle such taxpayer to revalue such well for the purpose of depletion allowances, unless the tract or lease had been acquired before it became proven. . . . .

Of all the special sections of the law which Congress intentionally inserted for the purpose of granting relief from taxation, this thirty-day revaluation provision is beyond doubt the most important. The exemption granted in section 213 (*b*) (4) to the interest and compensation received from states and their political subdivisions, is, to be sure, a much greater and more serious exemption, but over this Congress had no control. It was compelled to follow the Supreme Court rulings and exempt this income. In the case of the oil, gas, and mining industries, however, Congress, of its own volition, granted an enormous privilege. It is likely that, had Congress realized the full effect of this special provision upon the taxes of those individuals and corporations which are engaged in developing the mineral resources of the nation, this provision would not have been incorporated in the statute.

The effect of this revaluation privilege is shown by the following illustration. The Y Oil Company is engaged in the production and refining of petroleum, and like all such companies, is constantly endeavoring to bring in new wells and develop new territory for the purpose of maintaining and increasing its production. With this end in view the Y Oil Company acquires a lease on a square mile or 640 acres of probable but unproven oil land, adjacent to its proven territory. Development work is then commenced and the drilling of new wells is started in the most favorable locations at points which are just beyond one-fourth of a mile from the nearest producing well. By arranging the wells properly sixteen wells can be put on 640 acres without any well being within a quarter of a mile of its nearest neighbor.[1]

Each of these wells is drilled in *unproven* territory, since each is outside the boundary of the 160 acres proved by the preceding one. Assuming that ten strike oil in commercial quantities, the Y corporation is given the privilege of making ten separate and distinct revaluations within thirty days after the date of discovery. Six are failures, but ten are profitable wells, yielding an average settled daily production of 200 barrels each. The valuation of

[1] This is on the assumption that there is proven territory on two contiguous sides of the section under consideration. On an isolated square mile twenty-five wells can be located.

each successful well within thirty days after discovery is appraised at $2,000.00 per barrel. This is not an unusual figure considering the high price of oil in 1919 and 1920 when most of these discoveries were made. On this basis the whole ten discovery wells are valued at $4,000,000 for the purpose of depletion.

At first thought it might appear that the Y corporation had now received the total valuation possible under the statute, but a more careful reading of the law reveals that such an opinion is erroneous. Treasury Decision 2956 clearly defines a proven area as "that portion of the productive sand or zone or reservoir included in a square surface area of 160 acres, having as its center the mouth of the well." The sixteen wells mentioned above were drilled only to a depth varying from 800 to 1,000 feet where the first sand was found. The corporation now with a view to the discovery of a lower sand, commences a second development and repeats its previous procedure. New wells are drilled near the old, to a depth of 2,000 feet or greater, where a second productive zone or sand is discovered, which is not unusual. Each of these second-sand wells like the old, is drilled over one quarter of a mile from the nearest second-sand producing well, and therefore, is entitled to a revaluation within thirty days from the date of discovery. In the case of the first-development wells which failed, these would ordinarily be drilled deeper instead of making a wholly new hole. Assuming the same number of failures as in the first development, ten out of the sixteen wells would strike a second pay and yield an average daily production of 200 barrels. Therefore, the discovery of this second sand would increase the valuation by another $4,000,000 and bring the total valuation of this lease, excluding all equipment, to $48,000,000 for the purpose of computing the depletion allowance. Even a third or fourth sand might be discovered, which would lead to still more valuations, but for the purpose of this hypothetical illustration, a third sand will not be considered.

What is the financial effect on the corporation of these discovery valuations? The Y Oil Company obtained the lease on these 640 acres for a one-eighth royalty consideration and expended for casing and other equipment, which is subject to depreciation,

$500,000. The expenditures for drilling and other development charges amounted to another $500,000. Since no bonus was paid for the lease, the actual cost of development, $500,000, is the amount which is returnable through depletion allowances, under the revenue act of 1917. However, under the thirty-day revaluation clause of the revenue act of 1918, the Y Oil Company is granted a capital sum returnable through depletion allowances of $8,000,000, a difference of $7,500,000 which is really a gift in the form of tax-free income, granted by the government to the Y Oil Company because it is engaged in discovering and developing the oil resources of the nation. If the reserves are estimated at 8,000,000 barrels, the depletion allowed by the government is $1.00 per barrel, whereas the depletion actually sustained based on cost is only 6.25 cents per barrel—a gift of tax-free income of 93.75 cents for every barrel produced. When it is remembered that there are, no doubt, thousands of wells brought in yearly which are entitled to this revaluation, it will be realized that this section of the law is unquestionably one of the greatest loopholes of escape from taxation to be found in the entire statute.

The question at once arises: "Why did Congress show such undue favoritism with respect to the oil, gas, and mining industries?" The reason for favoring the mining industry is rather obscure, because there is no apparent shortage of mines. The scarcity and high price of certain mine products, such as coal, is caused by an entirely different reason. With respect to the other industries, the prime reason urged for this drastic exemption was that the country faced a shortage in the production of petroleum and help must be given those taxpayers who are engaged in the development of oil resources of the country, if production is to be increased to meet the dire needs of the country. Congress was, no doubt, impressed by the increasing consumption and decreasing production of petroleum, and it is not surprising that this thirty-day revaluation privilege was slipped into the statute on the ostensible ground that it would greatly stimulate the production of oil.

As a matter of fact, however, it is extremely doubtful whether any new development of oil territory can be truthfully ascribed

to this specific provision in the law. Those engaged in the production of petroleum were spurred on in their effort to develop new territory during the years 1918–21 far more by the ever-ascending prices of the product, than by any section in the federal tax law. Until there is evidence presented to show that oil operators would have discontinued or slowed up new development work, had not this thirty-day revaluation clause been inserted in the law, it must be concluded that this provision does not result in any appreciable increase of oil production, but merely enables certain taxpayers to legally avoid taxation.

For the sake of simplicity, and fairness to all other taxpayers, this discrimination in favor of mining, oil, and gas industries should be repealed.

Gold-mining corporations.—Section 304 (*c*) reads:

> In the case of any corporation engaged in the mining of gold, the portion of the net income derived from the mining of gold shall be exempt from the tax imposed by this title, and the tax on the remaining portion of the net income shall be the proportion of a tax computed without the benefit of this subdivision which such remaining portion of the net income bears to the entire net income.

By exempting the profits of gold-mining from the excess profits tax, it was thought that the production of gold would be stimulated, but as a matter of fact, the reasoning upon which such a consequence is predicated, is not sound. The production of gold depends upon the price of gold in relation to the cost of production. As long as the cost of labor and other expenses incident to the mining of gold remain at the present high level, the operation of those gold mines at or near the margin of production will continue to show little or no profits, and there will be no excess profits or income tax to worry about. At the present time the cost of gold production is so high that some gold mines have discontinued operations, and it is wholly futile to think that these mines can be tempted into resuming their unprofitable gold production by relieving them of the excess profits tax. They will continue to be idle until the cost of operations declines.

It should always be borne in mind that the excess profits tax touches no corporation where the profits are not excessive, and

hence section 304 (*c*) which grants exemption to gold-mining corporations is not necessary. The gold-mining business will be stimulated only if the costs of labor and materials entering into the mining operations decline, so that greater profits can be obtained from the business.[1]

Valuation of property as of March 1, 1913.—Of all the provisions of the law which grant special relief to persons engaged in the development of our mineral resources, the most important is that which provides for depletion allowance based on an appraisal of assets as of March 1, 1913.

The sixteenth amendment to the constitution became effective on March 1, 1913, and as a consequence the court rulings have held that all increase in value of assets prior to that date must be considered as the capital investment of the taxpayer, returnable to him free from tax, whereas all appreciation subsequent to that date is income and subject to taxation. Therefore, if a taxpayer is able to demonstrate that any of his assets had an appreciated value in excess of cost on March 1, 1913, such an appreciated value is returnable to him free from tax in the form of additional depreciation or depletion allowances which reduce the taxable income.

On account of the fact that the year 1913 was in general a period of poor business and low prices, it is well-nigh impossible for a trading or manufacturing business to prove a value for any asset on March 1, 1913, much in excess of cost less depreciation sustained to that date. Consequently, for such taxpayers the cost price controls, and the depreciation allowance is usually not augmented due to appreciation of assets prior to March 1, 1913. In the mining

[1] It may be added that even if the provision referred to were effective in stimulating production of gold, its social value is very doubtful. If gold production is reduced, the effect will presumably be to cause a decline of prices or to retard their further rise. This is on the assumption that business activity tends on the whole to furnish a demand for the bank credit or currency which the new gold reserves make it possible to issue. Should the present depressed condition of business be characteristic of the next few years so that the volume of credit decreases and surplus reserves pile up, it is hard to see how the new gold production can have any important effects, for good or for evil. Should the tendency be toward further expansion and recurrent periods of tight money, the social utility of additional gold supply which would make possible further price inflation and higher prices is at least debatable. In the author's opinion such a development is highly undesirable.

industry, on the other hand, the case is different, because of the fact that the principal asset of a mine is ore lands which may appreciate greatly in value due, not to higher prices, but to new discoveries and explorations prior to March 1, 1913, which revealed an ore body of much greater extent and richness than was known at the date of acquisition.

The problem of ascertaining the March 1, 1913 value of its ore bodies, thus becomes a matter of the utmost importance to a mining corporation. The value to be determined in the words of the law is "*the fair market value of the property on that date* (March 1, 1913)." In other words it is the price that the ore lands would have brought, in the open market, if they had been offered for sale on March 1, 1913. The property in this case is the ore lands, and nothing but this, because it is the ore lands only that could or did appreciate in value prior to that date. The other assets of the corporation could in no case be considered to have advanced in value on that date in the light of the history of that time. The question, therefore, is this: At what price would the ore lands of this corporation have sold, apart from all other assets, if they had been offered for sale in an open competitive market on March 1, 1913? This is not an easy question to answer for several reasons.

In the first place actual sales of ore land rarely took place on or about that date. Most of the mining properties which require large capital for exploitation have not changed hands often, so that the standard of comparative sales about that time is seldom available. Many of the richest properties were acquired in the nineties or earlier, and although there have been reorganizations from time to time, the majority interests have usually remained the same to the present day. Therefore, since the best test of value—actual sales of similar ore lands—is not available, other methods must be used.[1]

Another aspect of this whole question of valuation is that the law contemplates the value of the ore lands only, and not the value of the whole enterprise as a *going concern*. This must be true because the word "property" as used in section 234 (*a*) (9), refers

[1] This would not hold true of coal-mining property, because actual sales and leases of coal lands have frequently occurred.

only to property subject to depletion, which embraces only the ore lands, and excludes all other assets of the business. It is a well-known fact in business that the value of a *going concern* is much in excess of the value of the assets of the same concern if sold separately. The law has reference to but one asset—the ore deposit—and therefore any valuation based upon the sale of the entire enterprise, including plant and equipment, as a going concern is not warranted and should not be allowed. The rejoinder may be that ore lands of the kind under discussion are never sold apart from the plant and equipment used to exploit them, thus the static value desired, as opposed to the going value, is one impossible of practical determination. If this be true, then due allowance should be made therefor, and it should be recognized that the value of the ore lands, on the basis of a going concern, is considerably in excess of the fair market value contemplated by the statute, and should be in some measure reduced.

In the beginning the department clearly realized the dangers involved in allowing a valuation to be based upon the estimated future earnings of the whole enterprise as a going concern, and such a method of valuation was not permitted under preceding laws. Treasury Decision 2446 issued February 7, 1917, and incorporated in Article 172 of Regulations 33 specifically provided:

> In the case of mines (other than oil and gas wells) if the property was acquired prior to March 1, 1913 the amount of invested capital which may be extinguished thru annual depletion deductions from gross income, will be the fair market value of the mine property so acquired, as of March 1, 1913. The value contemplated herein as the basis for depletion deductions authorized by this title *must not be based upon the assumed salable value of the output* under current operative conditions less cost of production, for the reason that the value under such conditions would comprehend the profit to be realized from operation of the property.
>
> Neither must the value determined as of March 1, 1913 be speculative, but must be determined upon the basis of the salable value *en bloc* as of that date, of the entire deposit of minerals contained in the property owned, exclusive of the improvements and development work; that is, the price at which the natural or mineral property as an entirety in its then condition could have been disposed of for cash or its equivalent.
>
> . . . . The precise detailed manner in which the estimated fair market value of mineral deposits as of March 1, 1913 shall be made, must naturally

be determined by each individual or corporation interested and who is the owner thereof, upon such basis as *must not comprehend* any operating profits, the estimate in all cases to be subject to the approval of the Commissioner of Internal Revenue.

It is very evident from this quotation that no valuation based upon future estimated earnings was permitted under the 1917 law and regulations. The revenue act of 1918 with respect to valuations as of March 1, 1913, is the same as the act of 1917, but the regulations promulgated with regard to the determination of the value of mining property are very different. Compare the foregoing specific quotation with the language of Article 206, Regulations 45, as follows:

Where the fair market value of the property at a specified date in lieu of cost thereof is the basis for depletion and depreciation deductions such value must be determined, subject to approval or revision by the Commissioner, by the owner of the property in the light of the conditions and circumstances known at that date, regardless of later discoveries or developments in the property or in methods of mining or extraction. The value sought should be that established assuming a transfer between a willing seller and a willing buyer as of that particular date. No rule or method of determining the fair market value of mineral property is prescribed, but the Commissioner will lend due weight and consideration to any and all factors and evidence having a bearing on the market value, such as cost, actual sales and transfers of similar properties, market value of stock or shares, royalties and rentals, value fixed by the owner for purposes of the capital stock tax, valuation for local or State taxation, partnership accountings, records of litigation in which the value of the property was in question, the amount at which the property may have been inventoried in probate court, disinterested appraisals by approved methods, and other factors.

The method of arriving at the valuation is thus left to the ingenuity of the taxpayer, and no method is specifically prohibited as was the case under the 1917 regulations. As a consequence the taxpayer naturally will select that method which gives him the greatest valuation. What is the evidence that will support this valuation? It is manifest that the actual cost could not be used because usually the cost is far below the value in 1913. The actual sales of similar properties is the real evidence that should control, but as mentioned above, such sales are so infrequent that this evidence is not often available. The market value of the

stock is probably as good an index to the value of the property as can be found in most cases, although there are strong reasons for not placing too much faith in this evidence. The market prices of mining stocks are notoriously based on speculative values rather than on sound investment values, and besides they are subject to wide fluctuations. It would be entirely unsafe to base a valuation on the market quotations prevailing on March 1, 1913. Yet, if long periods of time are taken into consideration so that violent fluctuations offset each other, the average price of the stock during the period is a fairly reliable index as to what value the stockholders place upon their property as a going concern. The trouble is that such a value is almost always in excess of the sale price of the assets of the corporation, for the reason that it includes a certain speculative value attaching to the prospective future earnings of the mine.

Royalties and rentals of ore lands would, of course, be first-class evidence in support of a valuation, but are not always available. The value fixed for the purpose of the capital stock tax is of little significance, because this tax was not in effect in 1913. The assessed value for local taxation is an unreliable guide, because of the great lack of any system or accurate method by which such valuations are determined. Partnership accountings, litigation, and probate court records are very superior evidence, and should by all means govern whenever available. The final evidence suggested by the regulations—"disinterested appraisals by approved methods"—is the most dangerous of all, and yet it is the method which has been used with great success by many mining corporations who have not been slow to realize that an appraisal affords them a greater opportunity of setting up a large valuation as of March 1, 1913, than does any other evidence. As a consequence, the mining corporations have used whenever possible, and the department has accepted, the appraisal method of determining the valuation of the ore in the ground. Furthermore, the method of appraisal in all cases is that commonly known as the present-value method which is based on the prospective estimated future profits of the business—*a method specifically prohibited under 1917 regulations.*

The following illustration, which is no no way exaggerated, shows the consequence of this method of valuation. Let it be assumed that the X Copper Company was organized in the year 1900 with a paid-in capital stock of $1,000,000. Mining claims giving title to extensive ore lands were acquired at a cost of $500,000 and development of the property was commenced. By the year 1913 the property had been developed to a profitable basis and for some years had been paying dividends. The balance sheet as of March 1, 1913, based upon actual cost of the assets showed the following:

BALANCE SHEET OF THE X COPPER COMPANY AS OF MARCH 1, 1913

Assets			Liabilities and Capital	
Ore lands		$ 500,000	Accounts payable	$ 300,000
Underground development		500,000	Capital stock	1,000,000
Plant (buildings and equipment)		1,600,000	Surplus stock	2,300,000
Other assets:				
Accts. rec.	$400,000			
Copper inv.	500,000			
Supplies	100,000			
		1,000,000		
Total		$3,600,000	Total	$3,600,000

An examination of this hypothetical balance sheet indicates that the X company had prospered greatly as the result of its fortunate purchase of an extensive and rich ore deposit, which had justified the construction of a large plant with an annual capacity of 25,000,000 pounds of refined copper. The development and exploration work had revealed that on March 1, 1913, there was still in the ground an assured and probable ore reserve estimated at 500,000,000 pounds of copper. It is evident that the value of the ore lands as of March 1, 1913, is far in excess of its cost in 1900, and therefore an appraisal is made in order to establish a valuation for the purpose of depletion.

The present-value method of appraisal consists simply in a determination of the selling price of the property on March 1, 1913, which would have yielded the purchaser a stated return on his

investment. Since a mine is a wasting asset with only a scrap value when the ore is exhausted, the original investment must be returned to the purchaser in addition to the annual return on the principal. The problem, therefore, becomes one in the determination of the present value of an annuity, but the department has added a refinement to the ordinary annuity valuation by assuming that the sinking fund, accumulated to extinguish the original investment, bears interest compounded at 4 per cent per annum, and furthermore, that the rate of interest yielded the buyer on his investment should be 7 or 8 per cent annually.

An analysis of the cost records showed that the average cost of production in the case of the X Copper Company for the years 1911, 1912, and 1913 up to March 1 was 9.5 cents per pound of refined copper, and the average selling price for the same period was 15.5 cents. The profit per pound is thus 6 cents, which amounts to a yearly profit of $1,500,000 or a total expected profit during the life of the mine, twenty years, of $30,000,000. The specific problem is, therefore, to determine the present value of an annuity of $1,500,000 for twenty years, the investment to yield 8 per cent and the sinking fund to earn 4 per cent annually. By reference to present-value tables it is found that the present value of a total expected profit of $1.00 in twenty years at 8–4 per cent is .440211, which amount multiplied by $30,000,000 equals $13,206,380, the value of the whole mine as of March 1, 1913. As the plant is worth $1,600,000 the balance, $11,606,380 is the value of the ore lands, and as these cost $1,000,000, including development, the appreciation in value is $10,606,380.

After making adjustment for the valuation the balance sheet shows the following:

ADJUSTED BALANCE SHEET AS OF MARCH 1, 1913

Assets		Liabilities and Capital	
Ore lands	$11,106,380	Accounts payable	$ 300,000
Underground development	500,000	Capital stock	1,000,000
Plant	1,600,000	Surplus earned	2,300,000
Other assets	1,000,000	Valuation surplus	10,606,380
Total	$14,206,380	Total	$14,206,380

As a result of this appreciation the rate of depletion has changed from .002 cents a pound based on cost, to .02321276 cents based on the valuation.

It is important to note that this valuation and the depletion allowance derived therefrom is based on several fundamental assumptions as follows: (1) that the entire property is sold as a going concern; (2) that the differential between the cost of production and selling price per pound will remain constant for twenty years; (3) that the estimate of ore reserves is correct; (4) that the annual production of 25,000,000 pounds will be maintained for twenty years.

1. The first assumption that the property is sold as a going business has been discussed above. It is very doubtful that the law contemplated the value of the ore lands as of March 1, 1913, to be determined by the market value of the whole business as a going concern. It is far more probable that the 1917 regulations more correctly interpreted the "fair market value" to mean the value at which the ore lands by themselves could have been sold. The increase in value of the business over cost is, by this method of appraisal, laid wholly upon the ore lands subject to depletion, whereas the increase in value may in large part be due to other causes, such as greater labor and managerial efficiency, favorable transportation facilities, or unusually low smelting and refining costs. Any of these causes would increase the net profit per pound, and thus add to the total valuation, but it is hardly possible that the law intended such circumstances to enlarge the value of the ore in the ground subject to depletion.

2. The assumption that the differential between the cost of production and price received for the copper will remain constant for twenty years is, of course, a very unsafe premise, and one that has not been substantiated by the history of copper prices since 1913. As a matter of fact, copper prices have fluctuated widely from 15 cents in 1914 to 36 cents in the early part of 1917, while production costs have not at all varied in like measure. The history of the copper industry shows clearly that it is unsafe to predict the course of copper prices for a period of even five years, not to mention the life of this property, twenty years. It is also rash

to predict the course of the cost of production in view of the increasing power of labor unions. It is not improbable that the increasing costs of labor and materials may so encroach upon the profit that some of the mines near the margin will be forced to suspend operations long before the ore is exhausted.

3. The science of measuring ore in the bowels of the earth is far from being exact. At best it is only an estimate which may, and often does, fall far short or exceed greatly the actual recoverable ore content.

4. The assumed rate of production can almost never be maintained constant for twenty years, because it is dependent upon such unpleasant contingencies as strikes and lockouts, mine fires, car shortages, and other conditions which curtail and even stop the production entirely at times.

The whole trouble with the present-value method of appraisal is that it is based on several fundamental assumptions which would hold true in a theoretical static condition, but never agree with the facts in the actual, continually changing panorama of practical business conditions. The prediction of future prices and profits in any industry is beyond the power of an engineering or economic science, and any appraisal founded on such a prediction is by necessity only a theoretical guess, and by no means should it be accepted prima facie as the fair market value of the property on March 1, 1913. As evidence in support of a valuation the present-value method of appraisal is distinctly inferior to other forms of evidence, such as average stock prices, values fixed in litigation, etc., because the former is a theoretical figure based on precarious assumptions, while the latter are actual figures taken from real business experience.

If, in the case of a particular mining property, no other actual evidence as to its March 1, 1913, value is available, it may well be urged that the present-value method of appraisal should be used. However, if this method is used, a radical change in the interest rate should certainly be adopted. Instead of discounting the total expected profits of the mine at 8–4 per cent, the rate should not be less than 12–4 per cent, for the reason that mining is universally recognized as a hazardous business and an investor would

not incur the risks incident to the ownership and operation of a mining property unless his investment would yield him at least 12 per cent. An 8 per cent return on a mining venture is insufficient to attract a buyer, and if the property of the X Copper Company had been sold on March 1, 1913, it is wholly in accord with practical business experience that the buyer would not likely have bought the property on an 8 per cent basis, but rather he would have offered a price that would have yielded him not less than 12 per cent.

For the purpose of revealing the full effect of these valuations as of March 1, 1913, upon mining corporations, the history of the X Copper Company will be illustrated by periodical balance sheets and statements, calculated on the assumption that the estimated future profits, on which the valuation is based, are actually realized. The annual income statement is as follows:

Sales, 25,000,000 pounds		$3,875,000
Cost of sales at 9.5 cents		2,375,000
Annual gross profit at 6 cents		1,500,000
Depreciation (5 per cent)	$ 80,000	
Depletion at 2.321276 cents	580,319	
		660,319
Net taxable income		$ 839,681

In the determination of the foregoing deductions for depletion and depreciation the customary practice has been followed of computing depreciation by the straight-line method (5 per cent of cost annually) and of computing depletion per pound by dividing the valuation of the ore by the number of pounds recoverable. It will be noted that this method of calculating the allowances for depreciation and depletion is not strictly in accord with the method of valuation which assumes that the annual total allowances for return of capital are invested in a sinking fund which bears 4 per cent interest. The result of this inconsistency in the practice of the department is to allow a greater deduction for return of capital than the present-value method of valuation theoretically permits, and the remaining taxable income is thereby decreased.

By the end of the year 1913 it is assumed that 25,000,000 pounds have been produced and sold, and the balance sheet would appear as follows:

BALANCE SHEET OF THE X COPPER COMPANY AS OF JANUARY 1, 1914

Assets		Liabilities and Capital	
Ore lands	$11,106,380	Accounts payable	$ 300,000
Underground development	500,000	Reserve for depreciation	80,000
Plant	1,600,000	Reserve for depletion	580,319
Other assets	1,000,000	Undivided profits	839,681
Sinking fund	660,319	Capital stock	1,000,000
Cash for dividends	839,681	Earned surplus	2,300,000
		Valuation surplus	10,606,380
Total	$15,706,380	Total	$15,706,380

The foregoing balance sheet indicates that the allowance for depletion and depreciation has been invested in a sinking fund, and the earnings for the preceding fiscal period, $839,681 have not yet been distributed in dividends. Each year the net profit would be $839,681 and the depletion and depreciation allowance would be $660,319. Seven years later, by January 1, 1921, after all net profit except that for the last year had been distributed in dividends, the balance sheet would show the following:

BALANCE SHEET OF THE X COPPER COMPANY AS OF JANUARY 1, 1921

Assets		Liabilities and Capital	
Ore lands	$11,106,380	Accounts payable	$ 300,000
Underground development	500,000	Reserve for depreciation	640,000
Plant	1,600,000	Reserve for depletion	4,642,552
Other assets	1,000,000	Undivided profits	839,681
Sinking fund	5,282,552	Capital stock	1,000,000
Cash for dividends	839,681	Earned surplus	2,300,000
		Valuation surplus	10,606,380
Total	$20,328,613	Total	$20,328,613

Assuming for the illustration that the sinking fund was invested in First Liberty Loan $3\frac{1}{2}$ per cent bonds, which are tax free, the income statement would show as follows:

INCOME STATEMENT FOR THE YEAR ENDED DECEMBER 31, 1921

Sales (25,000,000 lbs.) at 15.5 cents		$3,875,000
Cost of sales at 9.5 cents		2,375,000
Gross profit		$1,500,000
Allowance for depreciation	$ 80,000	
Allowance for depletion	580,319	
		660,319
Taxable income		$ 839,681
Non-taxable income:		
Interest from sinking fund		184,889
Net income		$1,024,570

The excess profits tax liability is computed as follows:

INVESTED CAPITAL

Capital stock		$1,000,000
Earned surplus		2,300,000
Undivided profits		839,681
Realized appreciation:		
Depletion reserve	$4,642,552	
Depletion on cost at .002 a lb.	400,000	
		4,242,552
Total invested capital		$8,382,233

TAX COMPUTATION

Exemption (8 per cent of invested capital)	$670,578
Specific exemption	3,000
Total exemption	$673,578
Taxable income	839,681
Taxable at 20 per cent	$166,103
Excess profits tax (4 per cent of income)	33,220

From these statements it will be seen that in seven years the realized appreciation of the March 1, 1913, valuation, will have assumed such proportions that the large invested capital will reduce the excess profits tax to only about 4 per cent of the taxable net income. Each year the invested capital will increase and the tax will become less, until on January 1, 1925, the statements would show as follows:

BALANCE SHEET OF THE X COPPER COMPANY AS OF JANUARY 1, 1925

Assets		Liabilities and Capital	
Ore lands	$11,106,380	Accounts payable	$ 300,000
Underground development	500,000	Reserve for depreciation	960,000
Plant	1,600,000	Reserve for depletion	6,963,828
Other assets	1,000,000	Undivided profits	839,681
Sinking fund	7,923,828	Capital stock	1,000,000
Cash for dividends	839,681	Earned surplus	2,300,000
		Valuation surplus	10,606,380
Total	$22,969,889	Total	$22,969,889

INVESTED CAPITAL

Capital stock		$ 1,000,000
Earned surplus		2,300,000
Undivided profits		839,681
Realized appreciation:		
Depletion reserve	$6,963,828	
Depletion based on cost	600,000	
		6,363,828
Invested capital		$10,503,509

TAX COMPUTATION

Exemption 8 per cent	$840,280
Exemption specific	3,000
Total	$843,280
Taxable income	839,681
Excess profits tax	None

It is, therefore, evident that if the reserve for return of capital is invested in an admissible sinking fund, by the end of the twelfth year, January 1, 1925, the invested capital will have increased to such an extent, due to the realized appreciation of the March 1, 1913, valuation, that the corporation will be entirely exempt from any excess profits tax liability. During the last eight years of the life of the mine the X Copper Company will pay no excess profits tax. The annual depletion based on cost amounts to $50,000 at the rate of .002 cents a pound, whereas the rate of depletion based on the valuation is .02321276 cents a pound or $580,319 annually. Hence, the net effect of the valuation is to enable the corporation

to reduce its true profit by an additional depletion allowance of $530,319 annually which is really tax-free income. By "true profit" is meant the difference between the selling price and the cost of production. The appreciated value as of March 1, 1913, is in no sense a true cost of production. It is merely an increase in value or income which took place prior to March 1, 1913, and is, therefore, not taxable.

The importance of the interest rate used in the present-value method of appraisal is seen by the following facts. If the total expected profits of the X Copper Company, $30,000,000, are discounted at 12 per cent, which is none too high for a mining property, the valuation of the whole property becomes $9,766,770 instead of $13,206,380, a difference of $3,439,610 in tax-free income during the life of the property. This would amount to a difference in the annual depletion deduction of $171,980, which is quite an item to hinge upon a mere difference of 4 per cent in the interest rate. It is sometimes argued that the rate is actually larger than 8 per cent because the mine is a wasting asset which becomes less valuable each year, and the income received on the decreasing asset becomes relatively larger each year. This argument is, of course, fallacious because it overlooks the fact that the increasing sinking fund compensates for the decreasing mine assets.

In view of the tremendous consequences flowing from a large March 1, 1913, valuation, it is only natural that the mining companies should in all possible cases avail themselves of this method of appraisal which offers them the greatest opportunity of reducing their taxable income. The question is: "Does this method of appraisal actually establish a fair market value of the ore lands?" With due respect for the opinions of the mining engineers to the contrary, as a practical business man the author would answer in the negative. The valuation arrived at by this method is nothing but a theoretical value of a going concern, based upon several doubtful assumptions, which in the light of recent history have proved incorrect, and in no case should such a valuation be accepted as final evidence of the price at which the ore lands would have been sold in an open market on March 1, 1913. Other evidence of the value on that date is to be preferred.

From the point of view of the government what will be the result of these valuations in future years? It will mean, in short, that the mining corporations which have been allowed to set up these large valuations will escape with little or no excess profits taxation, on account of the large depletion deductions. It is a commonly known fact that the year 1917 was very profitable to those taxpayers engaged in the copper-mining business because of the unheard-of price of copper, which rose to 36 cents before the government regulation. Their profits were great and their excess profits taxes would also have been large, had not relief been given through this method of valuation. Even allowing a depletion rate of as high as $3\frac{1}{2}$ cents a pound, the large profits earned during 1917 and 1918 resulted in considerable tax liability, but this will not be true for the year 1919 and thereafter unless copper prices increase. The chances are, therefore, rather small that the government will get any considerable amount of revenue from these mining companies in the future, and in some cases where the cost of mining is high, the depletion allowance will practically wipe out the entire true profit.

The remedy for this situation is to revise the entire method of determining the fair market value of the ore property as of March 1, 1913. The regulations promulgated in 1917 should be substituted for those in Regulations 45, issued under the 1918 law, and the present-value method of appraisal should not be used for determining valuations except as a last resource when all other evidence is lacking. If there is no other available evidence, which would be true only in rare instances, the rate of interest used in the present-value method of valuation should be increased to at least 12 per cent, and the value thus determined should be further reduced in order to eliminate any value which attaches to the asset as a going concern. If such a procedure were followed in the future, the government would get from these mining corporations millions of dollars in profits taxes which, under present rulings, are lost.

ARTHUR C. KELLEY

CHICAGO, ILL.

JOINT COST IN THE PACKING INDUSTRY

The *Report*[1] of the Federal Trade Commission on the "Profits of the Packers" should receive the most careful attention of economists and accountants who are interested in the problem of joint cost. In unmistakable language the commission condemns as unsound the methods of cost calculation employed in the packing industry, albeit the methods are fundamentally those which are followed by the United States Department of Agriculture and the various public-service commissions in dealing with similar cost problems. The economist will note that the commission offers no constructive or practical suggestions as to how the problem of cost-finding in the by-product industries should be solved; and the keen accountant who is not led astray by the sentiment that the word of a government body is the last word will realize that the "generally recognized principles of accounting," which the packers are openly accused of ignoring, are principles which have been evolved to meet the needs of business enterprises essentially different in character from the business of meat-packing concerns.

Before reviewing in detail the criticisms offered by the Federal Trade Commission, it may be well to note those peculiarities of the packing industry which have given rise to the present system of cost accounting. In the first place, the meat-packer does not assemble raw materials into a finished unit as is the case in most manufacturing industries. He is engaged in dividing his raw material, consisting of a single commodity, into a great many finished products, differing widely from one another both in character and utility. Obviously, there is no way of ascertaining the money cost of each of the various products.

Another peculiarity about the packing industry which affects the accounting system is its complexity. From the point of view of functions performed, the industry is a collection of four fairly distinct industries, each performing a different function. These

[1] *Report of the Federal Trade Commission on the Meat Packing Industry*, Part V, 1920.

functions may be enumerated as follows: (1) slaughtering and meat-packing; (2) storing; (3) specialized manufacture of by-products; and (4) distribution or jobbing.

There are many small concerns that perform only one of these functions. Some packers, for instance, are concerned only with the slaughtering function. They sell their raw by-products to other establishments, engage little, if at all, in the storing of products, and are dependent on a local market for the sale of their meats. Other concerns may confine themselves to storing the products of the packing-houses. There are others which do not engage in the slaughtering of animals, but manufacture the raw by-products derived from slaughtering into finished products. Finally, there are concerns which devote their attention entirely to the distribution of packing-house products. They neither slaughter, store, nor engage in the processing of by-products. Here and there are establishments which perform two, three, or all four of these functions.

The economic reason for the distribution function should not be overlooked. According to the estimates[1] of the Federal Trade Commission, 70 per cent of all cattle other than dairy cows, 70 per cent of all sheep, and 51 per cent of the hogs are raised west of the Mississippi River, while 69 per cent of the population of the country lives to the east of it. Either live animals or fresh meat must be shipped from West to East, and it has been found to be more economical to ship fresh meat in refrigerator cars from the producing to the consuming sections than to ship live animals.

The performance of any one of these four functions requires special plant and machinery, special personnel, and special accounting. Each of these functions belongs to an industry in itself, and therefore the concern that performs two or more functions expects to make a profit on each of them—though it may make a loss—entirely separate and distinct from the profit that may be made in any of the other processes and functions performed by packing-houses.

The packing industry is further complicated by the fact that even in the performance of one function, involving the manu-

[1] *Report of the Federal Trade Commission on Private Car Lines*, 1919, p. 34.

facture of by-products, a single concern may represent a great collection of industries. In addition to the slaughtering of animals and the cutting and sale of meat, a packer may be engaged in the business of making sausage, canning meat, etc.; he may operate a soap factory in order to utilize inedible greases, or an oleomargarine factory for the utilization of edible fats; he may also engage in the manufacture of glue, commercial fertilizer, and a whole variety of products in which a large portion of the raw material comes from slaughtered animals.

In order to utilize fully their physical equipment and sales organization, some packers have seen fit to engage in the production or merchandising of such products as poultry, eggs, cheese, butter, lard substitutes, and canned goods. All these varied operations may require the operation of storage plants, power plants, box factories, mechanical supply departments, etc.

Thus, the meat-packing business is essentially different from the great majority of manufacturing enterprises. The peculiarities are such that the cost-accounting methods and procedure built up to serve other businesses are not applicable. Under the circumstances there is only one method that the packer can follow if he is to know in what operations it is worth his while to engage. In the first place, he must deduct the value of all by-products from the total live and killing cost of the animals slaughtered in order to arrive at a cost figure for his main product. If any of his by-products are advanced to a further stage of processing, the net market value of the by-products must be taken as the initial cost in the undertaking. Such procedure would necessarily follow from the fact that the packer has one of two alternatives where his raw by-products are concerned: either he can sell them to someone in the outside trade at the current market prices, or he himself can assume the cost and risk of subjecting them to further processing.

For accounting purposes, the large packing plant is divided into a number of departments, each dealing with a specific product or a group of related products. The operating departments are to be distinguished from the service departments because the latter sell few products to the outside world. As a rule, they merely furnish the operating departments with supplies and services.

Each department records its own purchases, sales, inventories, expenses, and transfers to and from other departments, so that the net result of each operating department in terms of profit or loss may be readily ascertained for a given period. Not all of the service departments will show a net balance because in some cases their services are rendered to the operating departments at cost.

The reason for the maintenance of these departments is to be found in the varied manufacturing processes and functions which characterize the packing industry. As has already been indicated, the industry is really a collection of industries, a whole succession of industries, each one of which is expected to stand on its own feet.

Suppose, for instance, that animal-fat products (a by-product of beef) are transferred to the soap department. To the beef department the transfer is obviously a sale; to the soap department it is a purchase of raw material. Each department pays for all it gets and is paid for all that it gives. Since the soap department represents a distinct business in competition with firms engaged only in soap-making, the soap department of a packing plant is operated along similar lines. All material transferred to this department is valued at the current market price, the price at which competing soap concerns obtain their raw material.

The departmentization of accounts also provides the packer with statistics on operating costs which enable him to know in what form a given product should be marketed, whether it should be sold in its present state or whether it should be processed further. Bacon, for instance, may be sold either in the cured or smoked state. Hams may be sold as fresh, cured, boiled, or smoked product. The packer who conducts both an oleomargarine and lard compound business has the choice of transferring oleo oil to the oleomargarine factory or of selling it in the open market. The final decision in all such cases will depend entirely upon the cost of processing and the market that exists for the product in each of its various stages. If the packer is to be able to adjust his business quickly and intelligently to the varying demands of the market, he must have at hand complete statistics on the operating costs of each department.

Under the departmental system of accounts, the method of arriving at the dressed cost of beef is as follows: To the cost of the live animal is added the current expense of handling the animal through the packing-house and branch-house organization. This gives total cost. From this total is deducted the value of the hides, according to weight and grade, figured at the actual market value of cured hides, with an allowance for shrinkage in curing and for expense of curing. There is also deducted the value of the fat and other by-products, figured at their full market value at the time the animals are killed, less the cost of processing. Deducting these figures from the total cost (live cost plus the expense of handling) gives the cost of the dressed beef, which, divided by the weight of the beef, gives the cost per pound. This cost, compared with the selling price of the beef from a particular lot, informs the packer whether he is making or losing money day by day and week by week. It is the guiding factor in his buying operations.[1]

The Federal Trade Commission does not take kindly to this method of cost calculation. The commission's conception of sound principles of cost accounting in the meat-packing industry is vaguely indicated in the following language:

> To get at the profit on beef it is necessary to secure the cost of that portion (about 55 per cent of the live animal weight) of the steer which goes into carcass meat. Not until a cost system is evolved whereby there is an initial slaughtering department which kills the animal and transfers the various parts to other departments (such as dressed beef, hides, oleo, etc.) in such a fashion that each department absorbs a proper share of the total live and killing cost, each bearing its proportion of waste and shrinkage, will the packers be enabled to announce with any authority their costs and profits per pound of beef produced.[2]

The commission contends that beef is only one part of the total animal, and that "the cost of beef cannot, accordingly, be assumed

[1] It is true that unit costs are also a factor in the packer's selling operations, but they are not a guiding factor. Beef is a perishable product and must be sold in the market for what it will bring. A change in the weather or industrial conditions may so reduce the demand for beef, and therefore the price, as to compel the packer to sell below cost, in which case he will bid less for cattle. On the other hand, if he can sell at a profitable margin over cost, he will increase his purchases and develop more volume.

[2] *Report of the Federal Trade Commission on the Meat Packing Industry*, Part V, 1920, p. 77.

to be the cost of the live animal, credited with the returns from all material except carcass meat";[1] that hides, casings, oleo, and other by-products should bear their "proper share of the total live and killing cost"; and that inasmuch as the packers do not include in their published figures of profits per head of beef the profits on soap, glue, leather, fertilizer, and other specialty products manufactured in part from cattle, "their [profit] figures as presented are understated and erroneous."[2]

It can hardly be said that these are the "generally recognized principles of accounting" when it comes to dealing with the problem of joint cost. In the first place, such principles cannot be applied. The commission itself notes that the inclusion of profits from the glue and soap departments, etc., in profits per head of beef "would entail a very delicate, if not altogether impossible, allocation of a part only of the profits in specialty departments."[3] And even if such profits were arbitrarily allocated, it would still be possible for the Federal Trade Commission to contend that the packers were inaccurate in their statement of profits.

Over and above these considerations, however, is the fact that the profit or loss in specialty departments in no way belongs to the beef department. These are distinct industries. Each specialty department is in competition with outside concerns which are in no way connected with slaughtering establishments. Furthermore, the products that are transferred to specialty departments are transferred at market price, or, if there is no active market for the product (as is true in a few cases) in its present state, at the market price for the finished product less the cost of processing. In other words, no allowance is made for a profit on the product at the time the transfer is made. Therefore, no portion of any profit (or loss) that is realized in a specialty department may rightly be claimed by the beef department.

In contending that the profits of the packers are inaccurately stated because their "inventories are invariably priced on a market basis, when accounting principles require a cost basis,"[4] the com-

[1] *Report of the Federal Trade Commission on the Meat Packing Industry*, Part V, 1922, p. 77.

[2] *Ibid.*, p. 75. [3] *Ibid.* [4] *Ibid.*, p. 11.

mission again takes the position that the cost-accounting principles which have been developed to meet the needs of those industries that assemble raw materials into a definite unit are also applicable in their entirety to the joint-cost industries. Obviously this position is untenable. There is no known method of calculating the money cost of hides, fats, and other by-products of beef. Partly for that reason it is necessary to use market prices in taking inventories and in transferring products from one department to another. The main reason for this procedure, however, is that a large packer is engaged in a business consisting of a number of distinct businesses in each of which there are successive processes, and he has, or could find, an opportunity of selling his product at practically every stage of manufacture. (Indeed, he frequently transfers only a portion of a particular product to another department, selling the remainder to the outside trade.) If, under these conditions, he chooses to transfer the product to another department for further processing, then the net market value of the product must be taken as the initial cost in the undertaking. In other words, since transfers and inventories cannot always be based on actual money cost, it is only logical that they be based upon "opportunity cost." The same peculiar conditions are not found in the ordinary manufacturing enterprises where the product is salable only in its completed state.

The accounting agents of the commission in going over the packers' accounts made one suggestion with reference to the method of figuring the cost of dressed beef, whereby the total marketable weight obtained from a steer, say 700 pounds (including weight of beef, cured hides, rendered tallow, and other finished by-products), should be divided into the live cost, say $140. This would show a cost of 20 cents a pound for each item received from the steer. It was contended that the proper method would be to charge out each part of the steer at 20 cents a pound, and that the beef should be marketed on the basis of this same average cost.

The adoption of such a suggestion would mean that tankage, bones, and other low-priced material worth 3 to 5 cents a pound would have to be considered by the packer as costing 20 cents a pound. On sales of such material the books would show a loss of

15 to 17 cents a pound. On the other hand, hides selling for 40 cents would be shown on the books as costing 20 cents a pound, and the 100 per cent profit would doubtless be regarded as "profiteering." It would, of course, be impossible for any business to operate intelligently on the basis of such an accounting procedure.

It is difficult to reconcile the hostile attitude of the commission toward the packers' cost-accounting system with the fact that Part VI of the commission's *Report*[1] contains the results of a number of investigations, conducted by the Department of Agriculture for the purpose of ascertaining the cost of growing beef animals, in which the accounting procedure is no less faulty from the point of view of the commission than the procedure followed in the packing industry. For that matter, it is no secret that the Department of Agriculture uses substantially the same methods in its farm cost investigations that the packer uses.

The similarity between the two cost-accounting systems is due to the fact that almost every farm product, like every packing-house product, is subject to conditions of joint cost. Wheat and wheat straw, for instance, are inseparable products. So also are corn and silage (or fodder), milk and calves, beef animals and manure, etc. The problem of ascertaining the cost of producing beef animals which have been fattened on the products of the farm is exactly comparable to the cost-accounting problems that are constantly being met in the packing industry. It is the problem of ascertaining the final cost of a product, subject to conditions of joint cost, when the money cost of some of the raw materials is unknown.

It is necessary to note only a few of the methods used by the Department of Agriculture in dealing with this particular problem. In some of the investigations into the cost of producing beef animals, "feeds were charged to cattle at the monthly local market prices for the month during which the feed was eaten."[2] In other cases feed

[1] *Report of the Federal Trade Commission on the Meat Packing Industry*, Part VI, 1919. It is only fair to state that the commission disclaimed all credit and responsibility for this part of the *Report* because it represented the work of the Department of Agriculture. See "Letter of Transmittal," p. 1.

[2] *Ibid.*, p. 108.

costs were "based on the average farm price of the various feeds used as estimated by the farmers."[1] The general rule seems to have been to base the value of the feed on the cost laid down, or, if raised on the farm, to charge it to cattle costs at its net farm value when consumed.

On those farms where pork was a by-product of beef animals, pork was "credited to the cattle at what it sold for."[2] The credit allowed for manure varied in particular cases, but in general was "based on the average number of loads of manure reported by the farmers to have been produced and on what the farmers consider this manure to be worth per load to them."[3] In ascertaining the cost of producing calves, a credit was allowed for milk, consisting of the net value of "milk, cream, and butter sold or used on the table, and also whole and skim milk fed to the calves and hogs."[4] "On a number of farms cream was sold at 75 cents to 80 cents per gallon, in which cases these figures were used. These values were based on the average prices which prevailed during the three years."[5]

Thus, so far as fundamentals are concerned, there is substantial agreement in the methods employed by the Department of Agriculture and by the packers in dealing with the problem of unit cost.[6] In both cases the net market value of by-products is allowed as a credit against total costs; also, the transfer of products (whose

[1] *Ibid.*, p. 20.

[2] *Ibid.*, p. 112.

[3] *Ibid.*, p. 22.

[4] *Ibid.*

[5] *Ibid.*

[6] It is the opinion of the writer that the Department of Agriculture and the various farm bureaus carry the use of "opportunity cost" too far when they include land taxes and interest on land values as elements in farm cost. There would be no objection to this procedure if it were possible to include under gross farm income the yearly appreciation in land values. But such calculations would be hazardous and of doubtful value; and so far as the writer is aware, no attempt has been made to include such income.

The simplest way of taking into account the appreciation of land values in calculating farm costs is to view the problem precisely as it is viewed by the prospective land buyers. If they let the land to a tenant they can get a cash rent of only 3 or 3½ per cent normally, and out of this they are obliged to pay the land taxes.

The Department of Agriculture, therefore, should not include land taxes plus the current rate of interest on land values as the cost of land service. Land charges should be limited solely to the cash rental that the farm-owner could obtain from a tenant. Since the landowner would pay the land taxes out of his rent, no account should be taken of land taxes in figuring farm costs.

costs are not ascertainable) from one department to another is based on market price. In reality, the farm, no less than the packing house, has its departments, and the Department of Agriculture recognizes this fact when it charges to cattle costs the net market value of feed produced and consumed on the farm. Obviously the procedure that is followed in transferring products must also be used in taking inventories.

In view of the many precedents which the Department of Agriculture has established in the field of joint-cost accounting, and the inability of the Federal Trade Commission to suggest any logical improvement in the packers' cost-accounting system—on the basis of which the packers conduct purchases and sales of hundreds of millions of dollars worth of live stock and meats every year—it is hardly appropriate for the commission to state that "the inaccuracy of the present methods of figuring unit costs and profits casts doubt on all the public statements and advertisements of the great packers dealing with profits per pound of beef and of meat products generally";[1] or, that on account of the practice of valuing their products on the basis of market price—the only basis possible under the circumstances—rather than cost, the packers "have available a technique whereby reported earnings may be inflated or deflated practically at will without serious possibility of detection."[2] Such statements might lead one—in fact, *have* led many—to believe that the packers have deliberately "dressed" their accounts, although the commission found no evidence of falsification.

Economists may well ask the question, Is it the function of the Federal Trade Commission to condemn accepted methods of dealing with so delicate a problem as joint cost, thereby creating the impression that inasmuch as there is no known method of calculating the money cost of joint products, the packers are inaccurate in their statements of unit cost, when in point of fact they are following the only practical course that is open? If such is the function of the commission, should it not have *completed* its study of the cost

[1] *Report of the Federal Trade Commission on the Meat Packing Industry*, Part V, p. 12.

[2] *Ibid.*, p. 58.

accounting methods of the packers—undertaken at the instance of the United States Food Administration with a view to developing a uniform accounting system—so that it would have been able to propose some definite and practical cost-finding method (if it still found the packers' method unsatisfactory) applicable not only to the business of meat-packing but also to the business of farming and all other by-product industries?

As matters now stand, all industries which process their by-products are in a most peculiar position. On the one hand their cost-accounting methods are subject to condemnation by the Federal Trade Commission, while in the opinion of another department of the government they are based on "generally recognized principles." It is the function of the Federal Trade Commission, having stated the problem, to solve it; but in the writer's opinion there is no likelihood that the solution will be forthcoming.

GEORGE E. PUTNAM

COMMERCIAL RESEARCH DEPARTMENT
SWIFT & CO., CHICAGO

COST OF PRODUCTION AND PRICE OVER LONG AND SHORT PERIODS

Great difficulties are met with in stating a clear and straightforward exposition of price theory because of the fact that the given conditions or data of the problem are so different according to the length of the time period which the explanation takes into account. The forces which immediately regulate prices are different from those which ultimately control, and there are degrees or stages in both immediateness and ultimateness. The average student of economics is likely to be quite baffled by these distinctions and to get no clear ideas at all; but he is still more baffled by differences in degree, where distinctions are not sharply drawn and statements are left in the form of "it depends." This paper looks rather to the problem of exposition from the standpoint of the student than to the correction of errors in accepted doctrine, but the course of the argument will have to note cases in which current phraseology is misleading to unwary readers if it does not represent fundamental misconceptions on the part of economists themselves.

I

The most familiar device for separating certain short-time and long-time aspects of economic problems is the fiction of the "static state," and our first critical duty is to raise serious question as to this conception in its current form. The writer doubts whether its popularization has represented an advance in clearness of ideas or a service to the science. Passing over the technical point that there is no discoverable analogy between the meaning of static and dynamic in economics and their established meaning in mechanics, our objections are more serious. All science is static in the sense that it describes the unchanging aspects of things. There is no sense in making statements that will not continue to be true after they are made. The possibility of saying anything about a thing rests on the assumption that it preserves its identity,

or continues to be the same thing in the respect described, that it will behave in future situations as it has in past. The essential fact in economics is that different changes take place at different rates, that for certain time periods certain aspects of the situation may be assumed to remain unchanged, while for longer periods some of these will undergo change. The data or given conditions are different when different periods of time are under consideration.

It may not, however, be true, and generally is not, that the different changes can be completely separated in this way. The effects of long-period changes are not generally in fact practically negligible over the shorter periods. But scientific treatment, in view of the mere limitations of the human mind and the necessity of considering one thing at a time, is forced to treat the separation as absolute. We must ascertain the separate effects of the different causes and combine them after we understand them. This would have to be done just the same if the causes did not generally operate in different periods of time, but the latter fact greatly simplifies our thinking. It is more realistic and intelligible to isolate a short-period effect, abstract entirely from perturbations due to the operation of more slowly working forces because for short periods the effects of the latter are in reality relatively less important. There are thus, in fact, as many "static states" as there are economic problems worth studying. All that is really involved in the static method is the use of analysis, the assumption in studying the effects of any one cause that the operation of other causes does not interfere.

Another serious confusion in connection with static hypotheses relates to the conception of equilibrium. It is true practically if not altogether without exception that the changes studied by any science tend to equilibrate or neutralize the forces which bring them about, and finally to come to rest. The simplest example perhaps is that "water seeks its level"; the movement is always the effect of a difference in level and its result is to obliterate that difference and come to a stop. In the same way the wind is caused by a difference in air pressure, the transfer of radiant energy is due to a difference in temperature, of electricity to a difference in electrical potential, and so forth, the change or movement in

every case being of a character to equilibrate the forces which cause the movement.

In consequence of this fact it is a practical necessity to describe the action of any force by stating the *final* condition which it tends to bring about, the conditions under which it would cease to work. Any other description is partial and arbitrarily so. The only complete or logical procedure is to state the ultimate goal of the tendency in question. Such a statement or description does not imply at all that this final condition is likely to come about. When we say that the movement of water or air is of such a character as to obliterate the stresses which produce the movement we do not mean that these movements are likely soon to cease on the earth, just as we define north as toward the North Pole without implying that everything moving northward is bound for that goal. The final effect of even a short-period change may be an indefinite distance in the future, involving the practical certainty that in the meantime the original cause will change in character or cease to operate or be interfered with by innumerable other causes; it may be never so improbable that the final result will ever be reached, yet the proper and only proper way to describe the situation at the moment is to state a "tendency" toward this theoretical final result.

The static method therefore involves two fundamental but badly confused ideas. The first is simply that in describing any change it is assumed that "other things are equal." The second is that changes are described by stating the condition of affairs to which they would lead if they continued without interference until they equilibrated the forces at work and came to a natural end. These principles are the same in economics as in mechanics or any other science which attempts to predict effects from the knowledge of causes. Goods move in response to price differences from points of low to points of higher price, the movement tending to obliterate the price difference and come to rest. Productive services are shifted from one field of use to another in response to differences in remuneration and the transfer tends to bring the remuneration to equality in all fields—to produce equilibrium.

After a considerable amount of experimentation the writer has tentatively settled, for instruction purposes, upon a division of the problem of explaining prices into four, or possibly five, stages, relative to the time length of the changes to be discussed.[1] In all these stages or "cases" the general principle is that price is adjusted to the point at which supply and demand are equal. They differ in that supply and demand have different meanings, especially the supply. The first stage in the explanation is to state the character and condition of equilibrium of the forces operative at a given instant of time. Here the motives of both sellers and buyers are based on speculative considerations, the former entirely and the latter almost so. Supply and demand are both functions of price, meaning that the amounts that sellers will offer and the amounts that buyers will take depend upon the price. In general, sellers will offer more and buyers take less, the higher the price. The reason is that the higher the price the less is the likelihood that it will go higher and the greater the likelihood that it will go lower in the immediate future. In the primary markets, where prices are determined, this is the only consideration in the mind of sellers, and the buying is also almost entirely speculative. For the moment, the demand for goods for *immediate* consumption is practically negligible, and purchases are determined by opinions as to the probable course of prices in the near future.[2]

[1] This division differs from Marshall's four cases in important respects which wil be developed at length. My fivefold division corresponds more closely to his fourfold one.

This article discusses the problem of the explanation of price. It is appropriate to say that I think we have talked rather too much about prices as such, and should strive to keep more in the foreground the forces which are measured by prices and the changes which they bring about. The real subject-matter of economics is the organization of production and consumption. The desideratum is to get students to see how in our social system, in so far as it is based upon private property and free contract, consumption is controlled by the prices of finished goods, how these prices are translated through entrepreneurs' calculations into price offers for productive services which control the utilization of the productive resources of society, and finally and most sadly neglected of all, the circular character of the whole process. The pecuniary demand for goods has little relation to their objective human significance. It depends on the existing distribution of ownership and opportunity and the facts as to consumers' tastes, both of which are largely molded by the workings of the system itself.

[2] The situation in the market at a moment is represented by the familiar demand and supply curves. In the writer's view these gain enormously in reality and clearness by taking price as the base line, the independent variable, and interpreting the price

II

The second stage of the explanation deals with the production period for the good. From this point of view the supply is fixed and is on the market without reserve. The data are not sharply definable, but in general there is a fairly definite period within which supply is fixed. The situation is clear enough in the case of an agricultural product such as corn or wheat. Taking the season as a whole there is no possibility of a change in the supply between the time when final commitments are made for one season's crop and the time when the next crop becomes available. The growers may indeed market less of the crop, using more themselves, if the price is low, but if so[1] the fact is exactly like increased consumption by non-producers under the same circumstances. If the demand of the producers themselves is taken into account at all it should be regarded as demand and added in with the demand of non-producers, and not treated as a deduction from supply. In this case the suggestion made by Davenport[2] seems to be by far

---

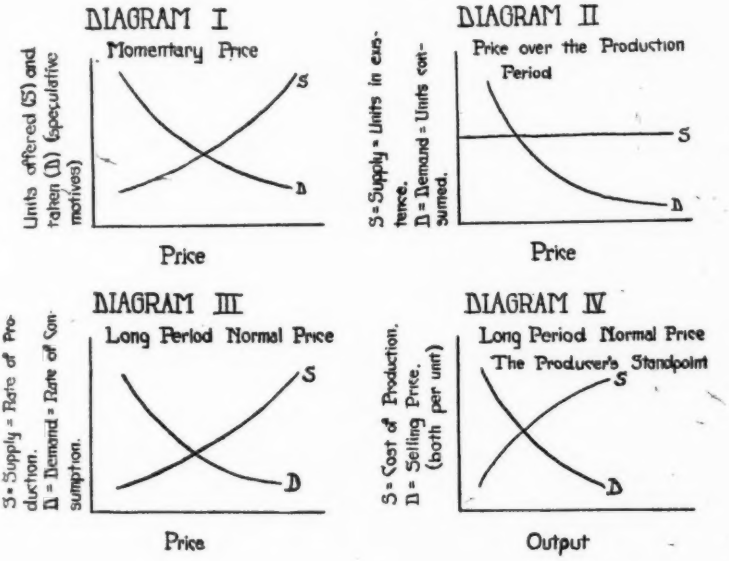
point as the point where the amount offered is equal to the amount taken. (See Diagram I.) This is the procedure of the so-called mathematical economists. American textbooks generally plot quantity of goods horizontally and price vertically in order to make the demand curve identical with a curve of diminishing utility (utility as a function of supply). When it is remembered that utility in the sense in which it influences price is *relative* utility, measured in terms of money, the value of the utility analysis for explaining price becomes somewhat problematical, especially for purposes of elementary exposition. It is not clear that such utility curves add much to the mere statement that purchases are a function of price. Certainly they have to be translated into curves of purchases as a function of price before they are usable, for a utility curve can at most represent the facts for a single purchaser. There is no possibility of comparing or adding utilities for a group of individuals differing in taste and in income and the only way of representing the *social* facts is to add the amounts of the good which different individuals are willing to purchase at the different prices.

In any case utility calculations are nearly negligible in relation to price at a given moment, since prices are fixed in primary markets where purchases are made far in advance of actual consumption. Purchases in advance of immediate needs by consumers, and still more by middlemen, and controlled by speculative motives, make up the effective momentary demand.

[1] Moreover the fact itself is improbable. If the wheat is the grower's main source of income it is at least as likely that he will consume more if the price is high, since the difference in his income due to the higher price of his produce is likely to be more important than the difference in the price as a deterrent to consumption.

[2] *Economics of Enterprise*, pp. 48–52.

the most realistic manner of viewing the situation. The demand from the standpoint of the production period as a whole is the consumer's demand and is a decreasing function of price, represented by the same sort of curve as in the former case. The supply curve (again taking price as the independent variable) is a horizontal straight line. (See Diagram II.) The theoretical



price is the marginal demand price of the existing supply, the highest price at which it will all be consumed within the period before new supply becomes available.

Even in the case of wheat some qualification of this formulation is necessary. Some wheat is carried over from one production period to another and variations in this amount with anticipated changes in conditions in the next period may be appreciable. And the facts are somewhat complicated from the standpoint of any one country by the fact that the market is international. But from the standpoint of the world-market as a whole the description is a fair approximation to the facts.

With respect to manufactured goods more serious reservations must be made. The production period is less definite and the amount of carrying over from one production period to another is much more important. For extreme price changes the supply, meaning the amount produced, is more flexible over short periods of time and anticipated changes in the conditions of production make themselves felt more quickly by affecting the rate at which existing stocks are thrown on the market. If prices promise to be higher, middlemen hold back supply, raising prices before the new conditions actually become effective, and if they promise to be lower, stocks are reduced below the normal levels, reducing prices.

These two cases, the situation at a moment and over that more or less definite production period within which supply is not subject to change, are thrown together in the conventional treatment of market price. It seems to the writer absolutely necessary for clearness to separate them. In neither, it is obvious, do conditions of production affect price. For a given supply once produced, the price which competition tends to establish is determined by demand alone. The costs of production are ancient history. The producer will get as much as he can, whether it is more or less than his costs. The *tendency* is to establish over the production period the highest uniform price at which the supply will be consumed and momentary price fluctuates around this level in response to the speculative estimates of traders.

III

Over longer periods of time supply and demand take on still different interpretations, especially important in the case of the supply. The supply now means the amount produced, viewed as a continuous average rate, and becomes a variable, controlled by producers' calculations. From this point of view price tends toward the point where the rate of production and the rate of consumption are equal, both being functions of price. It is axiomatic that goods cannot permanently be consumed more rapidly than they are produced and will not be produced more rapidly than they are consumed.[1] For short periods of time this equality does

[1] The latter part of the statement does not fit certain types of "durable" goods such as gold, jewelry, works of art, ideas, etc., which are not strictly speaking consumed at all. The theory of normal price (price determined by cost of production) is wholly inapplicable to such things, in the form which is valid for ordinary consumption goods.

not necessarily hold, for the reason that accumulated stocks serve as a sort of buffer between production and consumption. Consumption may exceed production for a considerable time, drawing down accumulations, and production may exceed consumption by building them up; but it is evident that neither difference can exist permanently or for very long.

The form of the functional relation between rate of production and price is the most complicated problem in price theory and to this problem the remainder of the discussion will be devoted. But one more distinction must be drawn by way of defining the data or given conditions of the problem. A change in the production of any given commodity may be associated with a change in the total productive power of the society as a whole or it may be related to a shift or transfer of productive power from one use to another. In general, again, it is a matter of the time interval taken into account. Over relatively short periods of a few years or a small multiple of the production period for the commodity, referred to under Case II, changes will generally represent transfers of productive resources and will be correlated with opposite changes in the production of some other good or goods. For such periods of a few years the total productive power of society does not greatly change. It is therefore as natural as it is necessary to separate the consideration of effects of changes in total productive power from those of transfers from one field to another.

The effects of these long-period changes in the total situation will not be taken up in the present discussion at all. We assume that the fundamental conditions of economic life in the aggregate, on both the supply and demand sides of the relation, remain unchanged. These fundamental conditions include (*a*) the total supplies of productive resources ("land, labor, and capital"); (*b*) the "state of the arts" or the knowledge of productive methods and processes; and (*c*) the "psychology," tastes and habits of the people. Significant changes in these things are generally progressive in character, in contrast to the readjustments to accidental fluctuations which make up the changes considered under the three cases already enumerated, and may be grouped under the heading of *Social Progress*. A social setting in which all such progressive changes are abstracted but in which unlimited time is

assumed for all adjustments to the given conditions in these fundamental respects to work themselves out to their natural equilibrium results, is approximately what is meant by the "static state" or Marshall's conditions for the establishment of long-time normal price.[1]

We turn now to the crucial problem of the relation between the supply of a commodity and its price (meaning by supply the rate of production of the commodity) or in other words the problem of the form of the long-time supply curve. If supply is some function of price the meaning of the price point as the condition of equality between production and consumption is clear. Diagram III is drawn on the superficially natural assumption that an increase in price, other things being equal, will increase the production of the good, that supply is a direct function of price. Demand (rate of consumption) is of course an inverse function, as in the other cases.

[1] The expression "unprogressive society," though less compact, seems to the writer much better than the "static state" to designate this situation. The word "static" suggests the absence of *change*. The idea is not however to eliminate change, but only *certain* changes while discussing the natural readjustment of other things to the given condition of those assumed as unchanging for purposes of the argument. The term "dynamic" contrasted with "static" is still more objectionable and "progressive" has in this case the advantage of being more euphonious as well. The distinction between progressive change and fluctuations seems to be important enough to justify a generic division along this line. It is not always true that progressive changes become practically important only over periods of time long in comparison to those in which fluctuations work themselves out, but it is so generally true as to make the division all the more significant and to make it easier to visualize the separation.

The advisability of distinguishing between short-time and long-time normal price will be taken up immediately. If this is done we have five cases or sets of data for our analysis in place of Marshall's four (*Principles of Economics*, 6th ed., p. 379).

It is fundamental to price theory as a whole, in which no sharp separation is possible between the prices of consumption goods and the prices of productive services or distribution (since the costs of production are identical with the distributive shares) that the data for the long-time theory of the former are the same as the data for the short-time theory of distribution. Over the period under consideration (say a few years) the supply of any consumption good is variable, a function of price, while the supply of any fundamental productive factor is fixed. The theory of progress will treat of the remunerations of productive services under the influence of changes in supply, and of what Marshall calls "secular changes" in normal prices (of consumption goods).

The production of the commodity depends on the action of producers who are governed by profit-seeking motives and it is in this connection that cost of production exerts its effect on price. It goes without argument that cost affects price only as it affects supply, that any given supply put on the market will sell at a price determined by the demand, irrespective of its cost. The general character of the reasoning is simple. If the price is above the cost of production (including a profit representing payment at the general market rate for the entrepreneur's own services) production will be stimulated and the increased supply will bring down the price. If price is below cost, production will be decreased and the price raised.

From this point of view it is obvious that the costs which influence supply and price are the money outlays necessary to production. Ultimately these are the payments for the use of productive resources. We shall neglect the effects of taxation. We have no concern with the pains or subjective sacrifices involved in production, since it is not at all in terms of such "costs" that the entrepreneur makes his calculations on the basis of which he decides whether to produce the good or on what scale. He takes account of sentimental costs only in so far as they influence the outlays he must make to secure the services necessary to production. That is, he is concerned only with the price measure of his costs. Their magnitude in some other aspect will not influence his decision. Pains and sentimental repugnances are undoubtedly an influence in limiting the supply of some sorts of services and raising their price, but in the aggregate they form a relatively unimportant element, and no one now contends that there is any tendency for the prices of productive services, still less of final goods, to bear any correspondence with these magnitudes. The relation between them is a separate inquiry, pertinent perhaps to an evaluation or criticism of the competitive economic order, hardly so to an explanation of its workings.

It would seem also to be almost too obvious for argument that in those costs which influence the entrepreneur's decisions and affect the supply and the price of a commodity, rent payments take their place among and in all respects on a parity with the

outlays for other necessary productive services. They condition production. The entrepreneur must make these payments for the same reason that he must pay, say, wages; he must meet the offers of competing bidders for the use of the productive capacity represented. Even when all of these competing bidders are other producers of the same commodity, the service being useless in any other industry,[1] the payments are socially necessary as a means of effecting the distribution of the land among the different users and its rational combination with other agencies.[2]

Closely connected with the confusion involved in the interpretation of cost in subjective terms and the exclusion of rent is the notion of marginal cost, and the whole idea that one unit or portion of a supply costs or may cost more or less than another, under the conditions assumed for long-time normality. This point will be developed as we proceed,[3] but since other confusions are also involved in the error, it should be mentioned here.

For the present let us first be clear as to what the assumptions or given conditions of our problem are. Progressive changes are eliminated, but *unlimited* time is assumed for the making of productive adjustments. That is, we are describing the tendencies operative in the relation of production to demand in terms of their *final* results in the absence of interference, as insisted upon at the beginning of the paper. Later on will be taken up the question of

[1] A condition doubtfully more often true of "land" than labor, bearing in mind that mineral resources are not economic land.

[2] The separation of land from "artificial" productive goods is to the writer one of the hardest things to account for in the traditional economic speculation. It simply is not true that there is any productive power in land which has not been "produced" in the only sense in which men produce anything; its value is due to the form it is in, which represents previous investment, and the supply is determined by free investment in competition with other fields. The speculative element in such investment may be larger on the average but in the writer's opinion the reverse is more probably true.

These statements do not apply to mineral deposits and other *exhaustible* and *non-replaceable* natural wealth. There would be good ground for erecting these goods into a separate productive category; but this type of natural productive power is just what has been excluded from the category of land by the economists' definitions. But, detailed discussion of the classification of productive resources is outside the field of this paper.

[3] See below, p. 317.

the advisability of a separate formulation of their effects when they operate for more limited periods (Marshall's short-time normals).

Under these conditions the supply curve is identical with a cost of production curve. The supply is a function of price because the cost of production per unit is a function of the supply, the amount produced. It follows at once from the relation between cost of production and price (see above, p. 313) that the amount which will be produced at any selling price (per unit) is the amount which can be produced at that cost per unit. That is, the same curve which shows output as a function of price shows cost as a function of output. In order to discuss the relations from the producer's point of view it is therefore advisable to reverse the axes of the diagram, treating supply as the independent variable and cost and selling price as functions of supply. This gives the same curves as before, but as seen in a mirror or looking through the paper from the back. (It is also evident that the demand curve may be regarded indifferently as showing selling price as a function of supply or the amount salable as a function of price, that these are two ways of looking at the same set of facts.) On the new diagram (IV) which represents a mirror image of Diagram III, the intersection of the curves shows in the more natural graphic way the equality between cost and selling price, which is the goal of producers' adjustments, though on either diagram, according to the direction in which it is read, it shows either equality of cost and selling price or equality of production and consumption.

Looking at the supply curve from this new point of view it is evident that decreasing costs would mean that at higher prices less of the commodity would be produced than at lower prices. This certainly seems paradoxical, and suggests that there is something wrong with the notion of costs decreasing as supply increases. The further course of the argument will show that decreasing cost as a long-run tendency is indeed impossible under a natural competitive adjustment of industry. Under the conditions assumed, an increase in the production of any commodity means a transfer of productive resources into the industry and a decrease in the production of some other commodity. But, other things being

equal, this decrease in the production of other goods will raise their prices and increase the strength of the competing attraction which they exert on productive resources against the industry in question in which output is being increased. In simpler terms, an increase in the output of any industry involves increased demand for the productive goods used in it, which increased demand raises their prices, that is, raises the costs of production of the commodity turned out.

The implications of perfect competitive adjustment may now be briefly summarized and decreasing costs shown to be incompatible with the long-run tendencies of productive adjustments. In the first place, a perfect market for productive services is implied, that is, uniform prices over the whole field. The costs cannot be different to different producers or for different parts of the supply of any one producer, on this account. In the long run the same productive goods will cost the same prices and all differences of every sort in productive situation will be evaluated at their true worth under the influence of competition and be converted into costs which function in the same way as all other costs in the producer's calculations. Most of the apparent differences in production costs are undoubtedly due to imperfect evaluation of cost goods, and the *tendency*, however slowly it may work itself out, is manifestly toward a correct, uniform evaluation. Every productive good tends toward that position in the total productive system in which it has the greatest possible value, and tends to be priced at the value which it has in that position.

In the second place, the conditions of perfect competition include the production of every commodity by an indefinitely large number of competing organizations, *each of the most efficient size*. The confusion between variation in the scale of operations of the single productive establishment with variation in the output in the industry as a whole is perhaps the most prolific source of error in this whole field of reasoning. Under perfect competition, neither increasing costs nor decreasing costs in the individual establishment affect output or price. All establishments will be forced to the most efficient size, and variation in the output in the industry means a change in the number of establishments, without change

in their scale of operations individually. This does not mean that all must be of the *same* size, but that each, in the conditions in which it works, must be of the most efficient size and that the *efficiency* of all must be the same. This again is not the actual character of the competitive situation at any given time, but is its actual *tendency*, and it is the long-run tendencies which must first be grasped as a basis for discussion of conditions under which they are but partially realized.

The specification of a plurality of establishments each of the most efficient size eliminates at once both the possibility of decreasing costs due to increased efficiency under larger output and also the entire notion of marginal costs, referred to above (p. 314). If increased economies are available through larger-scale operations, then larger-scale operations will be introduced under competition, through an increase in the size of the establishment with a *reduction in the number* of establishments and *without an increase in the output of the industry as a whole*. The tendency to an increase in size and reduction in the number of establishments will go on, independently of change of output in the industry, until either all establishments reach a size of greatest and equal efficiency (not necessarily equal size) or else until there is only one establishment left in the industry. Competitive production is possible as a final adjustment only if the technological conditions and the demand for the product are such that a large number of organizations are left in the industry when all are at the size of greatest efficiency. Otherwise the tendency is toward the establishment of monopoly.

In the same way the notion of marginal cost is meaningless in relation to any final adjustment. Competitive price can never be determined in the long run by an equation of the cost of the final unit of the supply to the selling price, leaving a profit on earlier units. The final unit cannot be more costly than any other unit in the ultimate competitive situation; for (*a*) costs must in the long run be the same to all producers, as shown, and (*b*) there cannot be increasing costs in the individual establishment because that would mean that smaller establishments are more efficient than larger, and if so they will put the latter out of business or force their reduction to the most efficient size.

The same reasoning applies to different productive methods. In the long run all producers are forced to use the most efficient methods or give place to others who do. The long-run tendency is toward a price determined by the cost of production under the best possible conditions, not the worst, as so commonly stated, nor those of the average or representative establishment.

The final consideration and in some respects the most difficult of all is the relation between output and the capacity of fixed or specialized equipment in the industry. A considerable fraction of the productive equipment in an economic society can be transferred freely from one industry to another and another fraction can be transformed by being replaced by a different kind instead of the same kind when it wears out, but of another large part neither assertion is true.[1] From our long-run point of view the two former are equivalent; both amount to effective fluidity or mobility. But even ultimately it is not admissible to assume perfect mobility for all types of productive goods. Even if the tendency is finally toward some degree of mobility for productive goods generally, the time involved would be so very long that it is pertinent to grant the point and raise in the present connection the question as to the effect upon the cost function of assumed permanent specialization of cost goods.[2]

[1] The division lines cut across all the conventional productive factors. Some "land," some "labor," and some "capital" (capital goods) are transferable, some transformable (over a longer or shorter period of time) and some rigidly specialized. Here as elsewhere the conventional division is irrelevant; the writer has yet to run across any real economic problem in relation to which it has practical significance.

[2] It should be noted that it is impossible to be sure that we are adhering rigorously to the assumption that progressive change in total productive capacity is absent. When productive goods are changed in form there is no clear and definite meaning in the assertion that they remain the same in amount. The equivalence can be approximately preserved, in so far as the new forms represent the same amount of some more fundamental productive resource (such as homogeneous labor) as the old, but some differences in the kind as well as amount of the ultimate investment are doubtless always connected with differences in the immediate form of the production good. The question really is, the extent to which production goods differing in form and specialized to certain uses do ultimately represent the investment of unspecialized resources. It is undoubtedly true that for the most part they do; but even then, some such investments never wear out and give back the unspecialized productive power which went into them for use in creating goods of some other specialized form.

It is commonly and naturally assumed that if there is fixed equipment in an industry, not transferable to other uses, payment for its use represents a fixed cost and that a reduction in the output of the industry will be accompanied by an increase in the cost per unit. But if the entrepreneur's, i.e., the realistic point of view is rigidly retained it will be seen that this is not true. The entrepreneur's costs are the *payments for* the services of the cost goods and if the demand for a product decreases the rigidly specialized productive services used in making it will be *revalued* at lower levels and these costs also will decrease. In the long run, of course, such considerations as the fact that entrepreneurs may have contracted for these goods for a considerable period of time at fixed rates fall away.

What is true is rather that payments for permanently and rigidly specialized productive agencies do not exert a *causal* effect on the price of the good in whose creation they are employed. There is no exception to the principle that an increase in output represents an increase in cost per unit and conversely. Moreover it is difficult to give any definite practical meaning to questions of the causal relation between cost and price; such questions are metaphysical, having little bearing on problems of policy. The practically pertinent facts are summed up in the statement that under all conditions, (*a*) every productive resource *tends* to be employed in that way and place in which it will make the greatest possible contribution to the output of consumption goods as measured by pecuniary demand, and (*b*) that it (i.e., its "owner") *tends* to be paid for its use the value of the contribution which it makes. The statement that the cost of production and the price of any good are equal really signifies simply that productive resources are divided between the production of that good and the production of other goods for which they might be used in such a way that none of the resources can produce more value by being transferred either way. If cost is above price, some productive services are being used for the good in question which are worth more somewhere else, and if cost is below price, some productive services are being used for other goods which would be worth more

to produce the good in question. To avoid false inferences commonly drawn it should again be emphasized that there is no necessary connection between pecuniary demand and real worth and hence this reasoning in no wise vindicates the competitive system, and would not do so even if its tendencies came to literal realization. Our present concern is merely the question of accuracy in describing its workings, in terms of their final, long-run tendencies, which should be done correctly before critical judgment is passed. Under the conditions necessary to competitive production, and looking to the final results of competitive tendencies, the cost of production is without exception a direct or increasing function of output.

A more or less important qualification relates to the *extent* to which cost necessarily increases with output. For commodities which do not represent an appreciable fraction of the demand for any productive resource which goes into them, the change in cost corresponding to probable changes in output may indeed be practically negligible. The function may represent virtually constant cost. For example, the case of steel rails may be contrasted with that of carpet tacks. A considerable change in the demand for steel rails means a considerable change in the demand for the ultimate resources used in producing them, and will make a marked difference in the prices of these resources, i.e., in the cost of production. No probable change in the demand for carpet tacks would make an appreciable change in the demand for any ultimate productive resource and hence within the limits of accuracy of economic measurement the long-run tendency is represented by constant cost. The supply curve of Diagram IV is for such goods a horizontal straight line, in Diagram III a vertical one. But constant cost is the "limiting case" which in strict accuracy is never met with. There is no place for a tendency to decreasing costs, when the conditions are correctly stated.

IV

All of this reasoning relates to the ultimate goal of the competitive tendencies, with unlimited time allowed for the adjustment of production to given conditions of demand (but with long-period progressive changes in the general conditions of both supply and demand eliminated). The next question is that of the relation

between cost of production and price, the shape of the curve showing cost as a function of output and hence output as a function of price, over moderate periods of time. Two main sets of facts differentiate the short-period from the long-period tendencies. The first is the *physical immobility* of productive resources between different uses and the second is the comparative inflexibility of the *prices* of productive services, in terms of which the producer makes his calculations. When the price of a product changes, due to a change in demand, the entrepreneur cannot commonly change his price offers for productive goods immediately into correspondence with them. For many of these he is under contract over a longer or shorter period at specified rates. For others, notably labor services, psychological and social considerations prevent quick and accurate readjustments, not to mention that the entrepreneur himself does not come instantly and automatically into accurate knowledge of the facts. And when the price remunerations for "land, labor, and capital" do change relatively in different industries, transfers of these agencies from one industry to the other do not always follow quickly or freely. Even those agencies which are transferable without physical modification encounter a large amount of inertia and resistance. Others cannot be transferred without changes involving costs and still others are only indirectly movable; they must be allowed to wear out and be replaced with others of a different type. That is, the *ultimate* resources are largely mobile, but they are embodied in intermediate forms which are not; and finally, to some extent the ultimate resources are specialized and the only change to which they are subject is a revaluation.

In consequence of these facts of immobility the adjustment to changing conditions of demand is generally far from complete. And especially when it can be foreseen that the new condition of demand will probably be short-lived in comparison with the time required for perfect adjustment to it, the tendency to make these adjustments is enfeebled and for those adjustments which require an especially long time to carry out the tendency may be entirely abrogated.

To fit the theory more accurately to the facts of life the doctrine of short-time normal price has been formulated, notably by

Marshall. The idea is that over short periods supply is a different function of price, cost a different function of output, from what is true of the ultimate adjustment. Marshall separates the two cases by saying that for short periods of a few months or a year supply means the amount which can be produced for the price in question with the existing stock of plant, personal and impersonal, in the given time, while for long periods, of several years, it means the amount which can be produced by plant which itself can be remuneratively produced and applied within the given time.[1]

We question the validity of a separate formulation of short-period tendencies along the line adopted by Marshall or the recognition of a special "case" along any lines. It seems rather that the facts are sufficiently covered by recognizing that in a limited period only a corresponding part of the readjustment described as the final goal will be brought about. We argue that there is no division between short-period and long-period changes; that they are of the same character and differ only in the degree of completeness and that this variation in degree of completeness is smooth and gradual, without break or sudden change of character as the time interval considered is longer from zero up to indefinitely long periods.

Marshall's distinction between variation in output from the equipment, personal and impersonal, already in an industry and a variation due to a change in the amount of equipment itself, seems

[1] *Principles of Economics*, 6th ed., p. 379. It is to be observed that even Marshall's discussion of long-time normal price does not relate to the *ultimate* adjustment of production to fit given conditions of demand. This is in line with his general tendency to avoid clear-cut formulations and "soften" his principles to make them cover a broader range of facts. The present writer is inclined to a very different conception of scientific procedure, though not necessarily to the exclusion or displacement of "looser" forms of treatment. Another case in point is the concept of the "representative firm" already referred to. In our view general principles are to be stated with the most rigorous accuracy attainable and pure theory sharply separated from its application to reality. From this point of view the failure of a scientific principle to fit accurately any case whatever, much less any class of cases, may be a merit rather than a defect. It is not the purpose of such principles to describe facts in realistic detail, but to state with the greatest possible accuracy general relations which form a *common element* in large groups of real situations, even though they may not be the whole story, may not necessarily even give an approximately complete description, of any single case.

to involve confusion and difficulty if not definite error. It may be doubted whether a variation in the output from given equipment in response to variation in price is to be regarded as probable on a significant scale. To some extent the productive life of machinery in terms of total output may be greater at lower speeds (enough greater to offset the interest charge connected with stretching the yield out over a longer time) and if so machinery could be economically operated at higher speed as the price of the product increased. But it is improbable that this factor would be important, and the discussion quickly narrows down to the human element in the equipment. The argument assumes that at higher product prices, higher wages will be paid and that at higher wages, the same labor force will work the material equipment more intensively and turn out a greater output, through speeding up or overtime work.

Examination of this reasoning raises serious doubts. Everything depends on the assumptions as to the psychology of the workers. Suppose to begin with that the working day and speed are normal. It is pretty well demonstrated that what industry considers a normal[1] working day is too long and normal speed probably too high for maximum efficiency over even moderate periods of time. Labor cannot produce more than normal output except for a temporary spurt. Moreover, if the inducement is a simple increase in piece wages it is at least as likely that workers will choose to work less hard as that they will choose to work harder, and if they behave like the rational economic man they will be more likely to choose the former. They will take *part* of their increased income in the form of leisure time, earning more money but doing less work as the rate of pay rises. We are therefore thrown back upon special forms of wage payment such as bonuses for extra production, higher rates for overtime, and the like. It is undeniable that such expedients may stimulate production to some extent for a short time, but accumulating observation, notably the experience of the recent war, shortens the time to very narrow limits, and emphasizes the stupendous cost of the temporary increase through reduced efficiency later on.

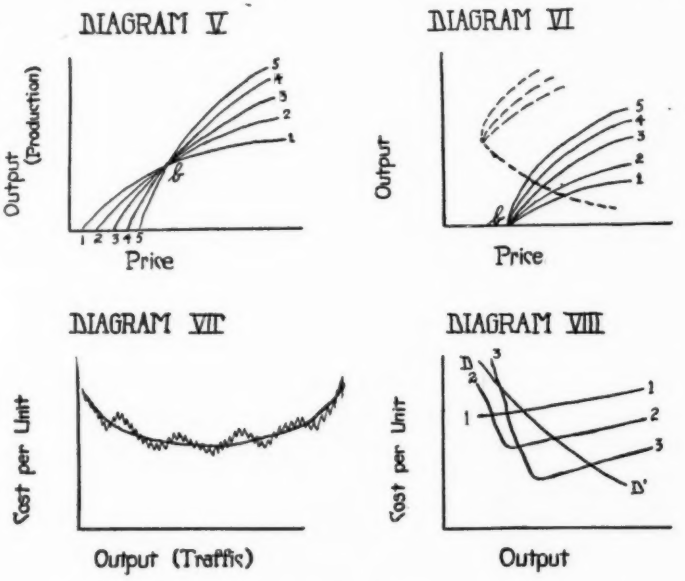
[1] Normal here means of course merely usual and has no connection with the use in "normal price" as the goal of tendencies at work.

Moreover it is quite clear that in fact the temporary increase in output going with high prices does not come altogether from the equipment, material and human, already in the industry. When prices rise the less specialized forms of labor and tools are taken on and when prices fall they are laid off; the longer the time available, and the greater the price change, the more highly specialized is the equipment, material and human, which will be involved in this change, varying continuously and smoothly in both directions and without limit.

When the fluctuation is below the normal (usual) working adjustment in the industry, the case is somewhat different. Here the dominating fact is that the entrepreneur usually bargains for his fixed equipment, or the capital which it represents, on long-term contracts and has to pay for its use whether it works or not. Under these conditions it is indeed true that the industry will be subject to decreasing costs. If the entrepreneur owns the equipment himself or hires it on terms of its momentary value to him, the long-run principle applies with the modification that *with reference to time periods for which* any particular equipment is specialized, its remuneration is not a price-determining factor, and this element in cost will be reduced by revaluation of the service in question. In regard to labor, the more expert and specialized branches are in much the same position as fixed equipment. The entrepreneur cannot generally afford to lay off such men and their wages are in large part a fixed cost with reference to short-period changes. With unskilled labor the tendency is to keep piece wages fairly constant for actual employment but reduce the number employed or the hours of work or both. It is by no means a negligible element in the actual calculation that both these facts mean increased labor efficiency at lower outputs, since in general the men laid off are the less capable, and the psychological influence of a depression in the industry works in the same direction in other ways.

The facts as to the relation between output and price are represented roughly in Diagram V. The point *b* corresponds to a normal adjustment in which price and cost are equal, which is assumed as a starting-point. For increases in price the output

may be assumed to increase in greater degree as the time for readjustment is longer, little or not at all for very short periods as shown by curve 1 and more steeply without limit as the time increases (curves 2, 3, 4, and 5).[1] For decreases in demand the same curves would be continued to the left as shown, again becoming steeper with increase in the time interval taken into view.



It may aid in vizualizing the situation to imagine that the curves to the right of the intersection (*b*) represent output of some commodity, demand for which is greatly increased by the outbreak of a war while the portion to the left of the intersection represents the facts for some luxury good, for which the demand is largely cut off; the different curves showing production according to different anticipated durations of the war. (It is to be assumed that the

[1] A complete and accurate representation would require a three-dimension drawing, the curves being located at successive points along a time axis perpendicular to the paper and blending into a surface increasing in inclination to the price plane with increasing distance from the zero point of the axis of time-allowed-for-readjustment.

productive readjustments are effectuated by price motives alone.) With reference to a new commodity not previously produced the curves will start from a zero point on the price axis as shown in Diagram VI. The dotted curves in Diagram VI relate to the possibility of producing the commodity on an entirely different scale by an entirely different, more highly organized, and more efficient process; this possibility will be discussed presently (p. 332). By this large-scale process small amounts of the good would not be produced or if they were the price would have to be very high; beyond a minimum point the rate of production will be an increasing function of both the price and the time allowed, as in the previous case.

V

The foregoing abstract formulation of principles may be brought down to earth, made concrete and connected up with practical social policy by a brief discussion of what is in a sense the stock example of decreasing costs, the railway industry. The effects of so-called fixed charges or burden and the resulting decrease in cost per unit as output (traffic handled) increases are as conspicuous and as familiar here as in any field. The decrease in cost is a concomitant of *surplus capacity* in important elements of the equipment.[1] The crucial question is, *why* do certain elements of the equipment contain surplus capacity? The answer, in the case of American railways, is obvious. The roads were built in the first place long in advance of the economic development justifying the investment, in order to pre-empt the locations and to speculate

[1] A well-known problem book in economics contains the question, if a railroad is already in existence between New York and Chicago and trains are running, what added cost will the railroad incur in hauling a five-pound box from Chicago to New York? Of course the Freshman is expected to answer that the cost would be slight, and to be duly impressed with the importance of fixed costs. No reference is made to the possibility that the trains already running may be full! The *added* cost of the particular small increment of traffic which compels the addition of even an extra car to a train will not be negligible. And locomotives also reach their capacity and new trains have to be added; and sometime, new tracks must be built if the traffic continues to grow, and ultimately it would be impracticable to increase the number of tracks. Perhaps about eight is a maximum before it would be cheaper to start an entire new system far enough removed from the first to avoid interference in switching and handling the shipments.

upon the unreflecting optimism of a frontier community, where every junction point habitually looks upon itself as a budding metropolis. And being built, they were (more or less wisely) laid out upon large lines, with a view to future expansion in the traffic. It requires no explanation that such an establishment, *while it is working up to the capacity for which it is designed*, will show large fixed charges and diminishing costs. It is just as obvious that this is a temporary condition.

The present confusion in the railway field in this country is in no small degree a product of the fact that for more than a generation the roads and the public were habituated to thinking of the industry as one of decreasing costs. The roads were encouraged by publicists and writers on railway affairs to make rates that would enable the traffic to move, oblivious even of the fact that the traffic increases were largely at the expense of other lines operating under the same conditions. The result is our impossible system of rate-basing and traffic classification. In the early years of the present century, the country grew up to its railway system; since then the equipment has been behind rather than in advance of the needs and railway finance has been floundering in bewilderment trying to find itself in relation to a situation in which increased business is no longer an advantage.[1]

[1] In European countries generally the facts were different, the traffic demands being generally up to the capacity of the railways as they were built and expanded; the foreign literature on railways is relatively free from the heresy of decreasing costs and foreign railway policies from the disorganizing tendencies based upon the idea.

The doctrine that railway rates are determined according to the principle of joint cost seems to the writer especially hard to defend, since the operation of the equipment would be actually simplified if its capacity were all employed in handling a single class of traffic. The notion of joint cost adds nothing to the simple statement of diminishing cost unless different kinds of product result in *nearly fixed proportions* from the same productive operations. Compare Taussig, *Principles of Economics*, chap. lx, and a discussion of the subject by Taussig and Pigou in the *Quarterly Journal of Economics*, Vol. XXVII.

The writer is inclined to believe that the "wise social policy" would be to require railways to make all charges on a ton-mile basis, over the best route, with allowance for special handling costs and any special service such as extra speed or the like. Of course this does not mean that they should be required to change quickly to such a basis from the present system, nor is the proposal expected to be taken seriously from the standpoint of that complex of auto-hallucination, humbug, and knavery which we call practical politics.

The actual shape of the curve showing cost as a function of output (traffic) is intended to be suggested by Diagram VII.[1] Beginning at an exceedingly high cost for the first small increments of business—so high that a railway would not of course be built for them alone—the cost descends for a time, rapidly on the whole but very irregularly. There is an upward "kink" in it not only for every new car, train, track, etc., but for every freight-handler, freight shed, bookkeeper, etc., necessitated by the expanding traffic. For a time the drops in the curve are much larger than the rises and the trend is sharply downward. A ten-car train is more efficient than a one-car train, and a double-track road, than a single track. But soon this tendency slackens, and still later it is reversed. The writer is not a railway expert, but is told that beyond somewhere around three or four tracks the efficiency falls instead of rising, and surely it needs not to be argued that a road of twenty tracks would be quite unmanageable.

The foregoing assumes a *rapid* expansion. If the growth is slow and related to conditions accurately known far enough in advance, the curve will be smoothed out to the trend line, as shown. Cars can be built a little larger instead of adding standard cars one at a time. Even a man, the most indivisible productive unit, can generally be employed for part of his time only in any one occupation, or "smaller" men can be replaced by "larger" ones. Even the capacity of the given number of tracks can be increased by varying the amount of auxiliary equipment, and additional tracks may be added gradually, beginning with the busiest sectors.

Diminishing costs are generally real in the very early stages of the expansion of the demand. There are minimum limits to the divisibility of important elements in cost. If a pipe is to be laid, a ditch must be dug wide enough for a man to work in, and the right-of-way for two railway tracks will not cost nearly twice as much as for one. Such gains, however, decrease very rapidly with expanding size and though many of them will never fall to zero, they are quickly offset by just as inevitable losses which increase

[1] The curve is of course a rough sketch and merely suggestive. Drawn accurately to scale it should never be steeper than a rectangular hyperbola through the point. A decrease in cost per unit at greater ratio than that of the increase in output would mean a smaller *total* cost for the larger output, which is absurd.

from the first, the varied and multiplying costs of maintaining internal stability as size increases. No fallacy is more pernicious with reference to intelligent economic policy than the popular illusion that large-scale business is in general more economical than small-scale. If the scale of operations expands very far it will always run into increasing costs; and as the facts stand the gains are more conspicuous than the losses so that even careful study inevitably overestimates the advantages and underestimates the critical size at which increasing costs set in.

But it may naturally be objected that if decreasing costs are significant up to the capacity of two tracks and real, even if small up to three or four, the operation of the greater part of the railway mileage of the United States would still in fact be subject to decreasing costs. This is doubtless true, in an accurate adjustment; and it may also be true to some extent that in a rapidly growing society it is wise at certain stages to overbuild the fixed equipment of public utilities in relation to current needs. It may even be true that a certain amount of price classification may be theoretically justifiable. But all consideration of the merits of the case serves to emphasize the very limited extent to which any of these conclusions hold and the importance of the practical considerations on the other side. The outstanding fact is that most if not nearly all the actual consequences of these policies are bad. Price differentiation either gets business at the expense of competing equipment operating under the same conditions or develops traffic which ought not to move, artificially distorting the natural lines of social growth, while the monopoly rate on the traffic which will "bear" it encourages socially unwise investment in the industry which makes the charge.

Getting business away from competing establishments similarly subject to decreasing costs raises again the question earlier discussed of the tendency of competition to force all the establishments to adopt the most efficient size. If a four-track railway is most economical, how can lines on a smaller scale continue to exist? The answer obviously is that only a part of the service rendered by a railway (the through traffic) is subject to competition, while a large part (local traffic) is a natural monopoly. The social

problem as to how far the possibility of securing monopoly prices for local service ought to be allowed to influence railway building is a vast and intricate problem which cannot here be gone into in detail. While the effect of free competition in railway-building and rate-making would be to concentrate economic development to some extent along favored transportation routes, the effect of forbidding new lines to compete with established ones at rates which would cut their traffic below the point of maximum efficiency would be to concentrate it much more. The policy of permitting free railway-building (and still more that of fostering competition), if consistently followed out, tends to diffuse population and industry over a wider area, reducing the natural advantage of proximity to superior transportation routes. As noted above, the writer would favor the policy of restraining competition. Then if "society" wants to encourage artificially the development of the newer regions or subsidize the movement of any particular class of freight[1] it should be done directly and consciously, out of taxation levied so far as possible according to the benefit conferred. But again, in practical politics, it is doubtless rash to suggest that society should do anything consciously and deliberately where it is possible to "muddle through."

VI

The foregoing discussion is all relative to an *expanding* demand. In our rapidly growing society contractions in demand are a relatively short-period phenomenon. When from any temporary cause an industry is working below the *correct* capacity of the fixed equipment, there is a tendency toward decreasing costs with their concomitant of cutthroat competition. Here the fixed costs represent either contractual remunerations not subject to quick readjustment or the physical immobility of the intermediate forms in which ultimately mobile ultimate resources are temporarily embodied. The amount of such physical immobility depends upon the suddenness and extent of the change. At one extreme a

[1] It is by no means meant to imply that this should never be done. The writer would hold—in opposition for example to Taussig (*Principles of Economics*, chap. lx, sec. 1)—that in this field social interests very often outweigh economic advantage, as measured by pecuniary demand.

large part of both the material and human productive resources of society would be included. At the other, practically nothing. It is the writer's belief that if we abstract from the disturbances due to progressive change in demand and in productive methods and from those affecting business as a whole (the "business cycle") the assumption of perfect mobility corresponds closely with the facts for all changes not so short in duration as to iron out through the mere tendency of business calculations to base themselves on average conditions.[1]

This high degree of mobility is to be sure largely the result of social growth or progress, making possible a shift in the relative investment in different industries through differential growth, without an actual transfer of equipment from one to another. Productive power, to repeat, is in its ultimate form either transferable from one use to another or else is not price-determining in its one special use; but at any particular time it is more or less largely committed to particular forms specialized to particular uses. It cannot be quickly recovered in its fluid form without loss, and for much of it the commitment is permanent or practically so. There is no contradiction between assuming a degree of mobility dependent in fact on the steady accumulation of capital and assuming at the same time the absence of disturbances due to progressive change. For, though accumulation is a phenomenon of progress, it is a type of progress which has no appreciable effect in upsetting business calculations or producing fluctuations. In any case it is legitimate methodology to separate the effects of

[1] Professor Friday's interesting argument against the concept of "normal profit" (in *Profits, Wages, and Prices*, chap. iii) does not affect the proposition as stated above, if indeed it applies to any doctrine which economic theorists have traditionally advocated. He has not in any sense disproved a tendency of profit toward a normal level, nor even that this tendency is reasonably effective over a moderate period of time if the variables are accurately measured in price terms.

In this connection it may be suggested that the conclusion of Professor Friday that an excess-profits tax will not discourage production may be hastily drawn. In the first place, we may question whether the anticipation of unusual profits is not in itself a vital element in the incentive to business activity. In the second place, it is admitted that profits are closely connected with fluctuations in industry and if the tax is levied annually a business which is actually losing money may pay a considerable amount of excess-profits taxes over a period of a few years.

mobility from *other* effects of progress even if there is some connection between the two, if there is also a large degree of independence of one upon the other.

One of the most serious oversights in the discussion of decreasing cost is the neglect of the mixture of competition and monopoly which is a general characteristic of the type of business supposed to exhibit this type of cost function. Just as part of the traffic of a railroad is competitive and part monopolistic, nearly every manufacturing and mercantile business has a monopoly on *some feature* of its product; its good or service is differentiated from others in some manner and to some degree. To the extent that any business is monopolistic it may manifest decreasing costs due to the "economy of large-scale production." We have only argued that such a cost curve is incompatible with long-run competitive conditions.

The correct approach to the explanation of price in the case of partial monopoly would seem to be to apply the theory of monopoly, not that of competition. Instead of attempting to allow for a degree of monopoly in the supply, which there is no easy way of doing, it is vastly simpler to allow for partial competition as a phenomenon of *substitution*, on the demand side. No difficulty whatever is involved in assuming control of the supply (of the commodity defined in the narrowest sense) and allowing for competition by substitution of more or less similar goods in drawing the demand curve. And this is the more realistic view as it represents the way in which the producer would naturally envisage the situation.

In still another sense the presence of partial monopoly is a qualifying factor in determining short-run price. When an industry is in a depressed state, working below the capacity of equipment not transferable within the period in which reduced demand operates, a feeling of community of interest tends to prevent that reduction of prices to the level of prime costs which would follow from perfect competition. It is to be emphasized that a considerable degree of one or both sorts of monopoly exists over a large part of the field of manufacturing industry. The influence of both sorts of monopoly on price, i.e., of the striving after the greatest possible degree of real or fictitious uniqueness in

product by different makers and the strengthening of a sort of "professional ethics" against price-cutting, has been emphasized by Professor Spurgeon Bell in his paper on this subject.[1]

One more phase of the problem of decreasing cost with decreasing output should be mentioned in conclusion. Without considering new inventions or the introduction of methods not previously familiar, there may be a possibility of using different systems of production in making a commodity, one method being more efficient for a smaller supply and another for a larger. This is under any probable conditions another phase of the variation in size of establishment, but in any case a confusion in the definition and plotting of the cost function should be pointed out. If it is true that a small output would naturally be produced by primitive methods while a larger one would justify a more elaborate organization with greater efficiency, it may well seem that the case is one of decreasing costs. There is a fallacy in overlooking the fact that any amount of the commodity *could* be made by any one of the methods available. A correct treatment of the cost in relation to output should plot a complete cost curve for each method separately, extending from zero output up to one of indefinite magnitude, as shown in Diagram VIII. For the simplest method we shall have the curve of slightly increasing costs which represents the normal situation as shown early in the discussion (curve 1). For a more elaborate technology the smaller magnitudes of output will be much more costly, but as output increases up to the capacity of the equipment, costs rapidly decrease, to a level below that of the first method. Beyond this point the curve becomes parallel with the first (curve 2). And similarly for a still more capitalistic method, as shown in curve 3. The significant part of the figure presents therefore, not a curve of decreasing costs, but a series of curves of increasing costs at different levels. It is hardly supposable that there can be a plurality of equilibrium points in such a situation, at which production may go forward *under competitive conditions*. The substance of the matter is, as already brought out, that if more efficient methods, connected with larger-scale operations, are available, the number of organizations in the

[1] The *Quarterly Journal of Economics* for May, 1918.

industry will be reduced until all are on the most efficient scale. Then if the demand is sufficient to maintain a plurality of organizations, each will be subject to increasing costs; if the demand is not large enough for that, the industry will be a monopoly, in which case there is no tendency for cost and price to be equal (monopoly revenue not being counted as a part of cost).

VII

The main conclusion which we have attempted in this paper to establish is that decreasing cost with increasing output is a condition incompatible with stable competition in the industry. A significant degree of the phenomenon is probably rare outside of industries which are *both* naturally monopolistic *and* greatly overbuilt in speculative anticipation of future growth in demand. The significance of fluctuations also is sure to be greatly overestimated. The effective physical mobility of capital and labor, considered as physical productive power, is probably great enough in our society to make possible a very close adjustment of production to demand under ordinary conditions. The changes which upset business relations and throw costs and prices out of correspondence are *price phenomena*, and are due to miscalculated speculative contracts and to changes in the value of the circulating medium. They affect business as a whole rather than the relations between different industries. Productive services as a class tend to be undervalued or overvalued relatively to finished goods. When the latter condition arises, industry has to stop and readjust itself, for under competition a business cannot operate unless it makes a pecuniary profit.

An error very different from that of treating price-determining cost as a decreasing function of output but not unconnected with it and very common, is the exaggeration of the economy of large-scale production and our highly organized industrial system as a whole. A spectacular saving is effected in certain operations, such as spinning and weaving; even when the labor which makes and maintains the equipment is considered, it is very large. But to make that saving possible large organizations must exist and the cost of internal cohesion in large groups of men is very high.

Material must be collected and goods distributed over a wide area and the incredibly wasteful methods of purchase and sale are the best so far devised. There is much food for reflection in the smallness of the difference in cost between a tailor-made and a factory-made suit of clothes and the fact that the housewife who does her own sewing can often make higher wages than are paid to her sister for making the garments by "modern" methods.

F. H. KNIGHT

STATE UNIVERSITY OF IOWA

THE BRASS CHECK,[1] A STUDY OF AMERICAN JOURNALISM: BY UPTON SINCLAIR[2]

It might be helpful if some supernatural power could decree that the question "Why is the press biased?" could be asked only *in* the form "Why are people biased?" In *The Brass Check* Mr. Upton Sinclair has had his eye glued so firmly to the question in the first-quoted form that most of the implications of the second seem to have escaped him.

The cause of biased journalism, Mr. Sinclair tells us in effect, is corruption—capitalistic corruption. Consequently, the solution of the community's problem of insuring its main sources of information, the news channels, from contamination lies in taking the press from the corrupt capitalistic goats and giving it into the hands of the innocent public sheep. Since this is the underlying assumption on which the book's proposals are based, it is manifestly pertinent to examine it briefly before going farther into an analysis of the problem itself and the adequacy of Mr. Sinclair's conclusions.

Granting that existing news columns are "biased"—in other words, that they frequently reflect directly or indirectly the opinions, personal preferences, or interests of the reporter, editor, or publisher instead of being impartial surveys of the facts in an impersonal background—is the phenomenon to be explained solely, or even chiefly, in terms of corruption and immorality, or through something lying still deeper, of which these are only symptoms or perhaps surface excrescences? Let us examine *The Brass Check* itself for an answer.

The reviewer would be the last to ascribe corruption or even insincerity to Mr. Sinclair. Yet, *The Brass Check* affords an excellent example of "biased" reporting. The bias may be quite

[1] Published by the author, Pasedena, Cal., 1920. Pp. 443.

[2] The reader will find a stimulating discussion of many of the issues suggested in this article in Walter Lippmann's *Liberty and the News*, published by Harcourt, Brace and Howe, New York, 1920.

justifiable—that point is not being raised at the moment—it is none the less bias. To quote the author's own words in the Introduction, *The Brass Check* is to be a "book of facts."

> The first half of this book tells a personal story. . . . . If I were taking the witness stand in a court of justice, the jury would not ask for my general sentiments and philosophic opinions; they would not ask what other people had told me, or what was the common report . . . . the thing they would wish to know—the only thing they would be allowed to know—is what I had personally seen and experienced. I take the oath of a witness. . . . . In the second half of the book you will hear a host of other witnesses. . . . . There are no mistakes in it, no guesses, no surmises . . . . no inaccuaracies. There are only facts.

In these words Mr. Sinclair obviously assumes for himself the function of a reporter, at least for the larger part of the book. Is his account, then, an impartial survey of the "facts" in an impersonal setting? Let the following quotations testify:

"There was a strike of the wage-slaves of the Beef Trust in Chicago." "All such things are lumped together by newspapers, which are good-naturedly tolerant of their fellow fakers" (p. 27). "How dignified and impressive! And how utterly and unspeakably knavish." "A man who spent his editorial time balancing like a tight-rope walker on the narrow thread of truth" (p. 29). "And now young Collier is dead, and the magazine to which for a time he gave his generous spirit has become an instrument of reaction pure and simple" (p. 30). "Also, no doubt, they were influenced by newspaper solidarity—a new kind of honor among thieves" (p. 54). "But alas for my hopes of fair play, my faith in the organ of arm-chair respectability!" (p. 174). "The 'kept' writers on the other side of the concrete wall" (p. 186).

Now these phrases—they are culled at random—may be quite justifiable in controversial writing, but they violate every canon of good reporting, inasmuch as the color they give the context is directly calculated to prejudice the reader with the writer's opinion. If we are to accept Mr. Sinclair's philosophy of the causes of bias, we must at once proceed to impute to him sordid or ignoble motives on an analysis of his own reporting. This inference is of course absurd. The truth is that he is so carried away with his own preconceptions that they inevitably color his

view of the facts. His preconceptions are simply different from those of the majority of news editors and writers.

Corruption has its share in contaminating news. The profit system undoubtedly lends its aid to the process. Corrupt publishers and servile editors and writers there undoubtedly are, just as there are corrupt and servile doctors, lawyers, politicians, and labor leaders, but the real difficulty lies in the tendency of men to think and act in terms of a bias of a largely unconscious character. It is made up of a whole set of preconceptions, evolved from heredity, family training, education, economic status, and interests—everything that constitutes social environment. The psychologists are just beginning to show us the complexities of the problem involved in estimating the relative influence of these various forces. In the light of their preconceptions men tend to test the "truth" or "falsehood" of the facts and relationships and "interpretations" which come into their experience. The dominant current bias is naturally capitalistic—which is not saying that it may not be quite sincere. When a man has a bias of a particularly crude form: when, for instance, he believes that the hope of salvation for humanity rests on the preservation of the existing social order unmodified, he is serving God and humanity if he helps to mold public opinion in that direction. To this common human weakness the publisher is no exception. He is simply in a position where his influence is more pronounced. This makes the publisher and the editor of great social importance, and the character of their "bias" of more than ordinary public interest—it does not condemn them offhand as corrupt.

The substitution of this hypothesis as to the chief cause of biased news for the "capitalistic corruption" theory cannot, however, be made a legitimate excuse for public self-gratulation. It may relieve our feelings, if we are inclined to be moralists, to substitute a wide band of gray for the sharp line of division between the black goats and the white sheep. Yet if we are really interested in securing more truthful and impartial news, and not in simply substituting a new bias for the old, our problem is immensely complicated by this much more baffling, if perhaps more tolerant, diagnosis of the underlying illness of journalism. For with its

acceptance the constructive possibilities of a "change in the system" alone lose much of their promise. Simply freeing well-intentioned people from "capitalistic domination" and giving them free rein in gathering their own news no longer meets the issue. They have, one and all, a bias of their own which will inevitably color their report of facts and relationships. Something more constructive than the mere removal of obstacles is obviously needed.

What is the real problem of journalism, and to what extent do the proposals in *The Brass Check* throw light on its solution?

The issue is not one of freedom of opinion. That is important, but not so important as that every citizen shall have as nearly as possible free access to all the important facts on which opinion is to be based. The modern community which is really in possession of the facts need not worry particularly about agitation of the wildest sort, whether it be extreme "radicalism" or extreme "reactionaryism." It may be—the reviewer believes it is—highly desirable that there be the utmost freedom of expression in editorial columns of all sorts, but unbiased news columns are of much greater concern because it is on the reliability of *information* that rationality of judgment must depend. What does this involve? There are, perhaps, two problems, interrelated and yet distinct: a problem of technique and a problem of control.

The task of reporting and editing the news is a complex and highly organized business, demanding, if it is to be well done, not only intelligence and intuition, but a highly technical training and an enormously wide background of knowledge. Without the capacity for scientific analysis and critical judgment, the best will in the world and the most sympathetic temperament will not make a journalist.

It may seem a simple thing to report the "facts." If it were only "facts" that demanded reporting, journalism might be an easy profession. But modern society is an infinitely complex thing, and to understand a labor dispute, a war in the Balkans, or even a baseball game, the public must have, respectively, not only the number of men out of work, the number of men under arms, or the score, but in each case the reasons behind these facts.

In other words, it must have the background, the relationships between them. For these relationships the reporter cannot depend on his observation alone. He must accept the evidence of others and, weighing it in the light of his own experience and knowledge, produce an "unbiased" account. Furthermore, he must produce it within a very limited number of hours. He is constantly racing the clock.

His problem would not be essentially different under any other organization of society. Inevitably his account will be prejudiced by his own outlook on life. All that can be hoped is that his knowledge will be wide enough and his professional standards high enough to do away with conscious bias and to reduce unconscious bias to the minimum.

If we happen to sympathize with Mr. Sinclair's dislike of the most prevalent existing form of bias, we will sympathize also with his trust in the "youthful" as against the older and more cynical reporter, but youth alone will not be a protection against biased news. It must be reinforced by knowledge and critical judgment. Granted that "youth" may be more courageous in standing out for its conception of the truth, and that courage is necessary, it cannot take the place of analytical ability. What the technical problem demands is higher professional standards—of capacity, training, and judgment. To secure these the community can do much to assist, partly, perhaps, by legislation (in demanding, for instance, a minimum educational requirement, as it does now in the case of medicine and law), but at least as effectively through various kinds of informal pressure. Public interference, however, will be fumbling and ineffective without guidance from the profession itself; it can help to furnish the impetus, but permanent improvement can be expected only through the development of a conscious professionalism on the part of the men who perform the technical service.

Despite numerous exceptions, it cannot be said that the quality of the great body of men who now report the news offers an encouraging outlook in this direction. In relation to its importance, the work is notoriously underpaid; its personnel is apt to be corre-

spondingly cheap; in so far as promising material enters it, it is usually with the idea of using it as an "experience" leading to something else; in short, it is *not* a profession.

To change this situation, a reporters' "union" (as suggested by Mr. Sinclair) might be a step in advance, but to realize its opportunities it would have to be far more than a device for raising wages, important and valuable as that would be in placing the task on a higher plane. The real opportunity for service for such an association would lie in its chance to promote the establishment of a real set of professional standards—of training, ideals, and ethics. In such an aim, difficult of attainment as it may seem under present conditions, lies the real hope of newspaperdom—the building up an ideal, not of propagating ideas for a new social order, but of professional service in disseminating the truth: leaving the members of the community free, that is, to form their own opinions and formulate their own policy.

It may be objected that all this is of no avail if the ultimate control of the press is still in the hands of owners whose main motive is personal profit. To a certain extent that may be true, and yet the development of professional standards has its bearing here as well. To see how, let us see what this problem of "control" is.

The problem as we know it arises through the size and complexity of the enterprise, the extent of the organization, the size of plant and equipment required—in a word, the amount of capital needed. Profits are derived from the advertising, not the sale of news. Publishing a newspaper becomes a "business" and not a "profession": the controlling owner may not himself be a professional journalist; whether he is or not, his controlling motive may be profit rather than professional service. As a result we may get the "corrupting influence of the market," the pressure of advertisers, personal corruption. So stated, the problem of social control of the press assumes the same form as that which the public faces in every major industry today—and seemingly it furnishes the same dilemma: a highly specialized business too technical for the layman to understand or follow through all its

phases and yet too vital to permit the consumer to allow it to go wholly unsupervised. The consumer lacks, and must necessarily lack, the expert knowledge to interfere successfully in detail; if he fails to interfere at all he lays himself open, apparently, to the machinations of Mr. Sinclair's "scarlet woman."

Let us now look at Mr. Sinclair's proposals. His remedy is to abolish the profit system and turn the press over to the "workers of hand and brain." What do these proposals mean as concretely applied? He suggests a municipally owned and controlled press. Is there any reason to suppose that a government in power would not have just as many special interests to promote—for the sake of staying in—as any private owner? or that it would hesitate any more to color, kill, or manipulate news stories to promote that interest? Neither the character of our municipal governments nor the record during the war of any national government in the world would give weight to such an assumption. The intelligent Chicagoan may have his doubts of the character of the news dispensed by the *Tribune* and the *Herald-Examiner:* would he have any doubt at all of news controlled by the city hall?

Mr. Sinclair suggests depending on organized labor for protecting the news (we shall not stop here to ask whether there is such a thing as a common interest among the "workers of hand and brain"). Granting—and the reviewer would be the last to deny—that the labor movement has a long bill of legitimate damages against the existing press for falsification of the news, have the experiments in starting "labor" papers given rise to any hope that the *news* columns thus controlled have done more than substitute one bias for another? However useful and necessary they may have been as counter-propaganda against "colored" news in the "capitalist" press, they have shown, from the *London Herald* to the *New York Call*, a thoroughly "capitalistic" capacity for not only emphasizing news favorable to labor, for biased "interpretations," but for actually misrepresenting the facts.

A press "subsidized" by private individuals or by government has been suggested as a means of getting away from control by advertisers. Without minimizing the evil aimed at, it might be pointed out that the French press (not to speak of an earlier type

of newspaper in English-speaking countries) is an excellent example of journalism supported by subsidy instead of by profit from advertisement, and there are few intelligent Americans familiar with both the American and the French press who would care to exchange. A subsidized paper may be a very fine example of high-class journalism; there are existing cases—but the result depends on the ideals and judgment of the person doing the subsidizing. On the other hand, one of the finest journals in the world, the *Manchester Guardian*, is organized on a straight-out business basis.

Granted an adequate standard of professional journalism—a body of highly trained men competent to weigh news in terms of social significance and to present it adequately—the problem of control becomes one of turning the control over to them. This does not mean that they ever would or should be free from public examination and pressure in the performance of their task, any more than the medical profession, for instance, is now. But the daily decisions have to be made in the light of professional knowledge available only to the technically trained man, and it is on his training and his self-control that the public must finally rely for the effective administration of the business of news gathering and distributing. It may be quite true that the dispensing of news is a public utility, and so legitimately subject to public control, but that merely states the problem, it does not solve it.

The discussion so far has perhaps tended to emphasize the work of the reporter as the main technical task involved in the problem. It is, of course, in some respects less important than that of the editor. It is the editor or—on a large metropolitan daily—a whole group of editors, who give the news its emphasis. Personally or by proxy, the managing editor decides daily, out of the mass of reports from the ends of the earth—how much space, and what emphasis (as to position, headline, etc.) shall be given a particular dispatch. The total amount of space is limited and at best it is a difficult problem of judgment which "story" is the most important. It is easy, in any given instance, to charge that a dispatch is omitted, mutilated, or given the wrong emphasis as a result of bribery or corrupt pressure on the editor. The charge

may be quite true in some—it may be in many—instances. It seems much more reasonable to assume that in the great majority of cases the editor's choice of emphasis is a result of a more or less unconscious bias which may be no more "immoral" than that of any other citizen, including possibly Mr. Sinclair. It may be a crassly stupid bias, and it may result in very serious social damage, but the remedy, mainly, is more knowledge, and not simply a change in bias.

It is almost inevitable that a task which involves so rapid a series of important and puzzling decisions as does that of the managing editor should develop a routine of its own—that the editor's mind should become in some sense a set of pigeonholes, whose character is determined by his mental outlook, into which news is nightly shuffled with its appropriate headings. If the outlook is narrow, the news is warped accordingly. This primary difficulty is only aggravated by the interference of the owner and of a range of private interests with the editor's original judgment. A real professional association, if such a thing is possible, would hit both evils at once, both improving and protecting the standard of the editor's judgment.

This is a long-distance remedy—the creation of real professional standards—but it is difficult to see how short of it there is any real solution. The adoption of a radically different kind of social and economic organization might hasten it—who knows?—but the mere change would not solve it.

One hears Mr. Sinclair objecting, perhaps, "I have expressed a wish that we could have a municipally owned press which would work. You have expressed a wish that we could have a professionally motivated press which would work. If my wish is futile, yours is no less so." To this criticism there are two answers. First, if the arguments in this paper have any validity at all, they should have demonstrated that without a journalistic personnel, properly trained and motivated, to which the community can intrust the decision on news, any change in control will be simply a substitute of a new bias for the old. Second, which is more nearly in line with the tendency of American social forces and best calculated to take advantage of the influences most favorable

to the aim in view—an impartial news system? Space forbids any adequate analysis of this issue. Two questions will have to suffice for argument. Is there any evidence whatever that the American community in the national, state, or municipal field has sufficiently worked out the problems of public administration to be prepared to handle adequately and efficiently the complex problems suggested in the preceding brief outline? On the basis of the vote in the recent national election, is there any indication that public sympathy and support would attend any comprehensive effort to meet the problem in the directions suggested in *The Brass Check*—assuming that any considerable group in either the municipality or in the labor movement had a concrete program for so meeting it, which is not the case? On the other hand, is there any reason to believe that the public would not welcome and, if they understood, would not aid, an effort on the part of the journalistic profession to solve its own difficulties? Frankly, as a pure personal opinion, the reviewer believes that it would.

What would be involved in the program suggested by the foregoing discussion? Its general character is perhaps already clear, and its details would have to be worked out gradually in practice, but a brief, concrete outline in summary might be pertinent.

First, as to the community's part: there seems no sufficient reason why minimum educational requirements should not be demanded of journalists as of other professional specialists. As the development of professional standards progressively justified confidence, their administration might be gradually, turned over more and more completely to the profession itself, as in the case of medicine and law, where the professional associations really exercise the authority in the name of the community, although constantly subject to public criticism and pressure. Breadth of knowledge and training really lie at the heart of the whole problem. There are, however, certain negative restrictions which the community might safely make in problems where its interests are manifestly not properly safeguarded at present, and where the dangers are quite clear and definite. Two or three illustrations should suffice; all of them are presented in *The Brass Check.* Personal reputations need more protection than is at present

afforded by the laws of libel. Second, the reader is in a better position to gauge the reliability of news if he is sure of its source—if he knows, for instance, that a dispatch dated "Warsaw" really comes from Warsaw, and from what agency—special correspondent, government bureau, private propagandist, or news agency. No such test of "bias" is possible in most instances today. Finally, the correspondent on the spot, especially the foreign correspondent, is in a much better position than the editor to give the right emphasis to a story. It is a simple matter today for the "bias" of editor or publisher, through headlines or blue-penciling, to change its whole effect on the reader. To the editor, none the less, in the very nature of the case, must be left the decision as to the amount of space to be accorded the material and its position in the make-up. These things are common knowledge, and these and others would probably not be impossible of remedy by regulation of one sort or another, well thought out. A general public discussion of the problems would in itself be helpful.

These steps could not hinder, they should promote, the assumption of a more conscious and intelligent leadership on the part of the better elements in the profession itself. Whether the time is yet ripe for the ideal suggested in the discussion of the technical aspects of journalism—the formation of a professional association of the editorial and reportorial staffs combined to bring about a gradual rise in professional standards of ethics—the reviewer does not pretend to say. The difficulties are great. Chief among them, perhaps, is the fact that the members of the profession as a whole who would understand the aim are probably now in the minority, and that the success of the project would depend on the gradual elimination of much of the existing personnel material and its replacement with new and different blood. It can be achieved, undoubtedly, only by a succession of tentative and partial starts in individual communities. Whether the "reporters' unions" and "newspapermen's associations" which have been started here and there offer hopeful promise, again the reviewer has no adequate opinion. The development of professional *mores* takes time, but the mere fact that the problem is beginning to be discussed is at least suggestive.

Whether journalistic "professionalism" presents dangers of its own—whether the genus newspaperman has a peculiar bias to be guarded against—who knows? It will probably be a long time before he fails to place the value of a "scoop" or "beat"—an exclusive story—far beyond the estimate the community puts upon it. Does he inevitably tend to become "sensational"? The answer depends partly on the education of the public, partly on the character of his own education and professional environment. There is no reason to assume that the "truth" must necessarily be uninteresting and dull, although the community today would probably be willing to accept rather more dulness than it is forced to.

This much, however, seems inevitable: that as community life becomes ever more complex, the journalist must more and more tend to specialize in particular fields. He must more and more become an expert in particular fields where his own knowledge best qualifies him to appreciate the bearing of the facts and to report them adequately. To the future must be left the problem of reconciling expert analysis with "interest." This issue is already here; leaving affairs *in statu quo* does not remove it—witness the growth of special newspaper "departments," finance, sports, and the rest.

One word in conclusion: *The Brass Check* lays on corruption and the profit system the responsibility for the hideous picture it paints. To change it, the author would abolish the profit system. Without claiming any particular virtue for a profit-motivated society, and without attempting to minimize the number of instances in which the profit motive has subordinated or even wiped out the professional motive, the reviewer has suggested that the emphasis of the book is wrong and the "reform" proposed inadequate. The essence of the alternative here proposed is the gradual building up—through the utilization of many and various social forces—of a real journalistic professionalism. As that became a real power, the problem of "control" would become progressively less pressing. As a further suggestion, however, this might be pertinent: men enter the publishing business today, as

they enter other businesses, on the "trial and error" basis, and with no preliminary qualifications other than the possession or control of enough capital to start. Will the community of the future, in its fumbling efforts to solve the general problem of social control, decide that in the ownership as well as in the administration of journalistic enterprises it is wise to demand at least minimum standards of fitness?

CURTICE N. HITCHCOCK

UNIVERSITY OF CHICAGO

BOOK REVIEWS AND NOTICES

The Elements of Marketing. By Paul T. Cherington. New York: The Macmillan Co., 1920. Pp. vi+238.

"This book, while it deals with the elements of marketing, is not a book for beginners. Marketing in the aspects here treated, is of the nature of an applied science—so it has been necessary to assume here a clear grasp of economic principles" (Preface, p. v).

This introduction to a book by such a dean of marketing teaching as Mr. Cherington promises a work more concerned with thoughts than with facts; with analysis and observation rather than description. And on the whole such a work is the little volume. Designedly the book omits the concrete material, illustrations, and descriptions needed in an introductory textbook. "Deliberately the larger aspects of the subject have been left to others better fitted to deal with them" (Preface, p. v). There is little effort to present problems of the type more or less common in advanced marketing courses. The result is an essay rather than a text. "Cherington on Marketing: Conclusions and Comments on the Problems of Merchandise Distribution by a Mature Observer" would not be an inappropriate title for the book.

Approaching the whole mass of data to be discussed, the author makes the assertion that "the essential task of any form of merchandise distribution is to effect a transfer of ownership." This may be done "directly," where producer and consumer actually meet, or "indirectly," where this is not the case, or by "artificial contact," chiefly advertising. Under modern conditions of production and consumption, it is stated, there must accompany this process three groups of activities: merchandise functions, auxiliary functions, and sales functions. Leaving this interesting layout for a moment, let us note the next analysis made. This suggests the resolution of marketing into "cycles" and proposes that we think of "marketing cycles as complete between changes in the form or nature of goods." This makes possible a classification of marketing into:

Class A, Merchandise for Manufacture.

Class B, Merchandise for Equipment or Large-Scale Consumption.

Class C, Merchandise for Individual or Household Consumption.

By superimposing the first of these analysis upon the second, an interesting and suggestive result is obtained which is illustrated below—by means of class C only (p. 27).

Class C—Merchandise for Individual or Household Consumption

A. Elementary Activity
   1. Bringing together buyer and seller in a trading mood
   2. Contact completed only after several steps; two common types are:
      a) Wholesaling and retailing
      b) Subdivisions of wholesaling steps
         (1) Actual contact
         (2) Artificial contact
         (3) Indirect contact

B. Supplementary Activities
   1. Merchandise functions
      a) Assembling
      b) Grading
      c) Storing
      d) Moving
   2. Auxiliary functions
      a) Banking and credit
      b) Assumption of risk
         (1) Small amount of trade in future
   3. Sales functions
      a) Equipment of sales place
      b) Personnel of selling force
      c) Relations with public
      d) Sales to the consumer by individual transaction in small lots

Not only is the interrelation of the two analyses made clear by this illustration, but the meaning which the author gives to merchandise functions, auxiliary functions, and sales functions is indicated. Without extended discussion it would be difficult, without alternative proposals it would be unfair, to challenge the more fundamental features of this analysis of marketing. (Cherington cheerfully admits that there are defects inherent in "any schematic presentation.") The reader may be interested, however, to ask himself, (1) What is the content of A that is not involved in B, 3? (2) Are not banking, credit, and future trading devices for carrying on functions rather than functions in themselves? (3) Is it not a little difficult to think of certain of the subtopics under B, 3 as functions, for example, "personnel of selling force?"

The chapters that follow this analysis deal with very general statements concerning the subdivisions of the outline. The assembling function, grading function, assumption of risks, sales functions, etc., are

treated. To the reader who is familiar with the wealth of concrete material possessed by Mr. Cherington it will seem lamentable that such a paucity of it is dispensed in the book. The chapter on the assumption of risks, for example, consists almost entirely of a statement that insurance is a functionalized assumption of risks and of a somewhat longish, and rather ordinary illustration of hedging. Some will feel, too, a disappointment that Cherington has not written about more matters, even if he limited his discussion of each one. There will be many who will want to know, for instance, what Cherington thinks about credit control, advertising, direct selling, research, and forecasting in connection with risk reduction, and why he limits his chapter on "financing mercantile transactions" to such "Class A" commodities as cotton, wheat, and eggs. This limited treatment of financing stands out the more sharply because the author has in other sections dealt almost exclusively with "Class C" goods, and because of the need for statements regarding working capital in marketing processes.

The last four or five chapters in the volume abandon the discussion of functions, and deal more or less generally with broad matters, such as "sales under brand," "the elimination of distributors," and "the cost of distribution." In these chapters the book is suggestive and stimulating, implying clearly that it is trying to tell the truth, but making no effort to tell all of it. The compromise is gratifying.

On the whole the book is one in which teachers and advanced students of marketing will find considerable material of use, and more of suggestion. The book does not say enough for elementary students, and advanced students should already know most of the things that are said. "Cherington on Marketing," however, is well worth reading.

LEVERETT S. LYON

UNIVERSITY OF CHICAGO

Community Organization. By JOSEPH KINMONT HART. New York: Macmillan, 1920. Pp. 230.

This is the first volume published in Dr. Devine's "Social Welfare Library" series. "It is the outgrowth of ten years of work in educational and social lines in Western States, together with six months' experience in the War Camp Community Service." The first six chapters of the book are devoted to a consideration of the "backgrounds of institution and attitude which condition the development of a community program." In these chapters the author discusses the need of

conscious direction of general community welfare. He maintains that our scientific knowledge is far in advance of social practice, and what is most needed at present is a fundamental change in social attitudes. The particularistic programs and the traditional attitudes of our various community groups, such as the church, school, state, labor union, and organized industry, are condemned as obstructions to progressive community development.

The remainder of the book deals with the essential phases of community deliberation, action, and leadership. Definite community programs are purposely omitted from consideration, the author believing that the program must be the outcome of the particular needs of the community concerned, and, therefore, cannot be prescribed in advance by an outsider. Mr. Hart opposes the principle of representation advanced by the Community Council Movement, namely, that of having the community council composed of representatives of the various community groups. On the contrary he suggests that the deliberative council should be composed of persons representing "vital functions" of community life, men and women chosen for their knowledge of the functions which they represent, rather than for their special group qualifications.

Mr. Hart approaches his subject from a psychological and philosophical point of view. "The community is not a definite and concrete group which all may see and immediately apprehend. It is rather an informing concept, a social ideal. Hence it exists at present mainly in the social imagination of individuals" (p. 17). Nothing is gained by giving such an idealistic interpretation to the concept community. Better to study the organic nature of those locality groupings of population which are commonly called communities, e.g., villages, towns, cities. It is unfortunate that the author has not seen fit to incorporate in his book definite examples of community policy and reaction which his experience as community organizer must have afforded him.

The chief value of such a book as this is the stimulus which it affords to more comprehensive thinking along social welfare lines. It is not a handbook in social technique, nor is it a contribution to scientific knowledge of community structure and forces. It is the type of book which tells what *should*, *ought*, and *must* be done, rather than the type which tells what *is* and what may be achieved by following specific policies in definite situations.

R. D. McKenzie

University of Washington